BRIDGING THE GENDER GAP:
AN EMPIRICAL SURVEY OF PROVOSTS, DEANS AND DEPARTMENT CHAIRS IN STEM FIELDS

A Thesis

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ABSTRACT

The low number of women in the hard sciences has been a long standing concern in universities. Concerns regarding women in Science, Technology, Engineering and Mathematics (STEM) in particular have recently come into the limelight in lieu of the fact that women are catching up to (or have exceeded!) men in many other fields, yet the number of women in these fields remains significantly lower than the number of men.

Previous research has shown that it is women who want to balance family and research in particular who struggle to deal with the clash between the biological and tenure clocks, and end up choosing one or the other. Our work in this paper is built on the premise that structural changes at the university level will provide these women with policies that enable them to balance both family and work. Many other researchers in this field have suggested policies that could be implemented to help women. The aim of our research was to get university administrators to evaluate these policies to see which ones are actually good policies that can be implemented to help women succeed at both work and family life.

To do this, we surveyed university administrators on their attitudes towards policies that could help women succeed in STEM fields. Using previous research, we compiled a list of policies that have been suggested to help women succeed in the sciences. This list was sent out by email to a total of 1529 provosts, deans, associate deans and department chairs of STEM fields in 96 research-oriented universities. These university administrators were asked for 2 responses to each policy – a rating of its quality and a rating of its feasibility. Our survey received 474 replies, of which 334 contained data which was used in the analysis.

For the analysis done in this paper, publicly available information was gathered on each respondent's gender, title, and university type (public or private). After de-identifying the data to

protect the confidentiality of the respondents, the data was analyzed to look for differences in the responses based on gender, title and university type.

The analysis found that the evaluation of quality and feasibility of some policies depended heavily on the gender of the respondents, while the title of the respondent did not significantly affect most quality or feasibility ratings. University type was significant for policies that involved funding and the preferential hiring of women. However, when it came to the best overall policies, none of these factors were particularly significant. Thus we conclude that the best policies are considered to have high quality and feasibility regardless of gender, title or university type of the respondent. These best policies include providing equal opportunities for women and men to lead committees and research groups, developing mentoring programs to reduce isolation of female faculty, and providing on-campus childcare centers. This conclusion makes it easy for administrators who read this report to consider implementing these best policies without being overly concerned about how the gender, title or university type of the respondents influenced the results.

The hope is that administrators across all research-oriented universities will use this report as a basis for implementing or altering policies to help women in STEM-fields better balance their work and family lives. Having the assurance that these best policies are backed up by the opinions of other administrators in similar positions will hopefully give administrators the reassurance necessary to implement new policies and bridge the STEM fields' gender gap.

BIOGRAPHICAL SKETCH

Agrima completed her high school studies at Raffles Junior College, Singapore, graduating in 2008. She pursued her undergraduate studies in Biology at the College of Arts and Sciences at Cornell University, graduating in 2012. She is currently pursuing a Masters of Human Development at the College of Human Ecology, Cornell University.

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LIST OF ABBREVIATIONS

Q1	**F1**	**QF1**	Have a woman chair search committees whenever possible.
Q2	**F2**	**QF2**	Reward departments that hire women.
Q3	**F3**	**QF3**	Set gender goals for candidate pools.
Q4	**F4**	**QF4**	Set quotas for new lines: women-only lines until critical mass reached.
Q5	**F5**	**QF5**	Explore/endorse couples-hiring.
Q6	**F6**	**QF6**	Guarantee academic employment for professional spouses/partners.
Q7	**F7**	**QF7**	Instruct search committees to ignore family-related gaps in CVs.
Q8	**F8**	**QF8**	Set gender quotas (minimum thresholds) for promotion to higher levels of rank (e.g., full professor).
Q9	**F9**	**QF9**	Set gender quotas for important committees and administrative posts.
Q10	**F10**	**QF10**	For promotion, increase value of teaching and service plus administration.
Q11	**F11**	**QF11**	Conduct (and disseminate) institutional research on gender equity.
Q12	**F12**	**QF12**	Provide fully-paid leave for giving birth (tenure-track women only): For 6 weeks.
Q13	**F13**	**QF13**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 semester.
Q14	**F14**	**QF14**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 year.
Q15	**F15**	**QF15**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 6 weeks.
Q16	**F16**	**QF16**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 semester.
Q17	**F17**	**QF17**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 year.
Q18	**F18**	**QF18**	Provide teaching relief for new tenure-track parents: 1 semester.
Q19	**F19**	**QF19**	Provide teaching relief for new tenure-track parents: 1 year.
Q20	**F20**	**QF20**	Stop the tenure clock for raising children for up to 1 year per child: For mothers.
Q21	**F21**	**QF21**	Stop the tenure clock for raising children for up to 1 year per child: For fathers.
Q22	**F22**	**QF22**	Change timing of tenure assessment to not coincide with peak fertility and childrearing demands.
Q23	**F23**	**QF23**	Allow option of changing from full-time to part-time tenure-track: Short Term (up to 1 year).
Q24	**F24**	**QF24**	Allow option of changing from full-time to part-time tenure-track: Medium Term (2-5 years).
Q25	**F25**	**QF25**	Allow option of changing from full-time to part-time tenure-track: Permanent.
Q26	**F26**	**QF26**	Support requests for shared tenure lines (between partners).

Q27	**F27**	**QF27**	Provide on-campus childcare centers.
Q28	**F28**	**QF28**	Provide subsidies for on-campus or off-campus childcare services.
Q29	**F29**	**QF29**	Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children.
Q30	**F30**	**QF30**	Offer family housing subsidies in regions where young families are priced out of the market.
Q31	**F31**	**QF31**	Use technology to allow women and men with children to work and attend meetings from home.
Q32	**F32**	**QF32**	Provide an academic role for women who have left professional positions to have children.
Q33	**F33**	**QF33**	Provide equal opportunities for women and men to lead committees and research groups.
Q34	**F34**	**QF34**	Train department chairs on helping faculty manage work-life issues.
Q35	**F35**	**QF35**	Develop mentoring programs to reduce isolation of female faculty.
Q36	**F36**	**QF36**	Convene gender-equity workshops focusing on issues such as workplace climate and resource allocation.
Q37	**F37**	**QF37**	Support no-cost extensions for caregiving on grants and fellowships.
Q38	**F38**	**QF38**	Support part-time fellowships and grants.
Q39	**F39**	**QF39**	Support the deferred start of fellowships to allow for caregiving.
Q40	**F40**	**QF40**	Endorse supplements to offset PI's productivity loss due to family-related absences.
Q41	**F41**	**QF41**	Support conference and meeting grant supplements to cover cost of PI's dependent care travel (children's and childcare workers' expenses allowable).
Q42	**F42**	**QF42**	Support grants for retooling after maternity leave.
Q43	**F43**	**QF43**	Provide support to help faculty engaging in caregiving duties to catch up mid-career.
Q44	**F44**	**QF44**	Endorse supplemental funding for hiring postdocs to maintain momentum during family leaves.

CHAPTER 1: INTRODUCTION

The underrepresentation of women as compared to men in the math-intensive Science, Technology, Engineering and Math (STEM) fields has been historically attributed to many factors – discrimination in interviewing and hiring processes, lack of access to the same resources that men have, lesser ability of women to do math and less flexibility in taking a career break to start a family, to name a few. It is true that for the extreme right tail of mathematical ability, men outperform women by a ratio of 2:1. Yet the underrepresentation of women in STEM fields is far greater – men outnumber women by a ratio of approximately 4:1. Current research shows that outright biases that hinder women from persisting in STEM fields are no longer present. Instead, women choose not to enter STEM fields as a career due to two particularly important reasons – career preferences and fertility/lifestyle choices.

This paper focuses on the second reason for women's underrepresentation in STEM fields – fertility and lifestyle choices. Women and men have biologically different needs – women are asked to peak in their academic career at the same time as when their biological clock (as well as society's expectations) is at its peak for childbirth. Handling both a career and raising a family is difficult in STEM fields in particular, because in many universities the strict timeline of the tenure system and the rigors which it entails provide many disincentives for women to have children. Women who wish to balance both a family life and a STEM career have few institutionalized, consistently implemented policies that help them manage to both raise a family and succeed in their careers.

One way to address the underrepresentation of women in STEM fields is to look into policies that can help women in STEM fields strike a balance between work and family

responsibilities. This paper highlights the results of a survey which attempts to do just that. A list of 44 policies was compiled based on measures that were recommended by authors of previous papers on this topic. This list was sent to 1,529 provosts, deans, associate deans and department chairs of STEM-related departments across the top 96 research universities. Respondents were asked to rate each policy according to two criteria – quality and feasibility. Ratings were based on a 9-point Likert scale, with 1 being the lowest score and 9 being the highest score possible. The survey received 474 responses, of which 334 were responses with data. This gives an overall response rate of 31%, and a response-with-data rate of 21.8%.

For each respondent, publicly available data was gathered on their gender, title and whether the university was public or private. The data was then de-identified to ensure the anonymity of the responses. The analyses we performed looked for the best overall policies in terms of quality and feasibility, and also looked at whether gender, title or type of university affected the perception of what the best policies are. A list was also created for the policies that differed most in terms of quality, feasibility and both quality and feasibility according to gender and university type. A corresponding list was not created for the differences between titles because there was no clear difference in the responses to the policies in terms of both quality and feasibility when title was taken into account.

From the analysis, we concluded that although gender, title and university type was significant for some policies, the best policies were not affected by the attributes of the respondent. Thus we have a list of policies that are high in both quality and feasibility that administrators can use to guide their policy-making decisions, without concern for the results of the survey being compromised by how the respondents' characteristics affected their responses. Our survey can thus form the basis for implementing changes in policies to help women in

STEM-fields by providing university administrators with evidence that the policies that they are reviewing are indeed thought to be effective by administrators in many other research universities as well. We hope that this assurance will be a cog in the wheel for forging forward with university-wide structural changes to bridge the gender gap in STEM-fields.

CHAPTER 2: LITERATURE REVIEW

The topic of the development of women's careers in science, technology, engineering and mathematics (STEM) fields has been examined through multiple studies. Empirical research has found that discrimination in interviewing and hiring is no longer a barrier for entry of women into tenure positions in STEM fields (1). Yet the ratio of women as compared to men in these fields is much smaller than the same ratio in other fields such as psychology, social science or the life sciences (2).

Gender differences alone are not enough to explain the low number of women researchers in STEM fields. At the extreme right tail (top 1%) of mathematical ability, men outperform women by a ratio of 2:1. While this does contribute to the smaller number of women as compared to men in these fields (3), it does not wholly explain why at a typical research university, the ratio of male to female professors is 4:1. One clue to uncovering the reason for this difference in numbers is found in the numbers of PhD recipients who go on to apply to tenure track positions. The ratio of female applicants for tenure-track positions to the number of female PhD recipients is significantly smaller than the ratio of male applicants to male PhD recipients (4). This differential gender ratio is not due to attrition rates after hiring. Rather, it results from the choice that female PhD recipients make not to enter the tenure-track in these fields (5).

Current research indicates that family formation – marriage and childbirth – is a major factor in female PhDs' choice not to pursue tenure-track positions in STEM fields. When faced with the dichotomy between family and an academic career in a STEM field, many women choose to drop out of academia and focus on their families instead (1) (2) (6). Contributing to

this dichotomy is the limited access that young researchers have to family-responsive policies like paid leave and childcare benefits, especially at major research universities (2). The lack of female mentors in STEM fields also makes it harder for females to persist in their chosen field especially if the environment is not nurturing (7) (8), though this view is contested by results that show that men and women who enter STEM tenure tracks have similar attrition rates (5). Nonetheless, the helpfulness of female mentors as networking sources for research partners and as sources of guidance on balancing family and academia cannot be downplayed. These deterrents have to be addressed if the gender imbalance in STEM fields is to be remedied.

Effective solutions to counter the imbalance between men and women in STEM fields lie in the crafting of university policies that make it easier for women in these fields to handle the dual pressures of academia and family. Policies that allow for an extended tenure-track job, family leave, use of childcare facilities, tenure-track re-entry assistance after leave and other such family-friendly policies will help ease the pressure on women in math-intensive fields (9). Provided that access to these policies is not limited (e.g. no maximum number of women who may take childcare leave at one time, or these policies being limited to tenured professors and not post-docs), such family-friendly policies will allow women to pursue a career in STEM fields without having to sacrifice family formation (2).

At the Massachusetts Institute of Technology (MIT), a study of women faculty in the School of Science in 1999 showed marked differences in how male and female faculty were treated. These results led to policy proposals to tackle the systemic problems that lead to gender differences in the university. These policies included the set-up of committees to monitor gender equity, new family leave policies to make it easier to balance work and family, hiring guidelines to locate women faculty candidates, committees to study pipeline issues (why women and other

minority candidates leave academia before earning Ph.D.s), and actively recruiting women into the academic administration. These policy proposals stemming from this survey of the MIT faculty were included in our list of policies to inquire about (10).

Another report on women in science and engineering at the university level surveyed women at 4 different universities on the challenges they face and policies that help in overcoming gender differences. The policies that were identified as successful strategies, particularly for recruiting, retaining and advancing women faculty, include overseeing the hiring process, devoting resources to hiring women, improving policies related to the tenure clock, child care and leave, strengthening mentorship, and promoting female networking and career guidance. Our survey aims to evaluate the quality of these policies as well as their feasibility (11).

While a 2007 book by the Committee on Science, Engineering and Public Policy (COSEPUP) had several policy recommendations regarding biases in recruiting, hiring, promotion and tenure across universities, a 2009 report published by the National Research Council review of gender policies found that biases against women in hiring, promotion and access to resources have largely been eliminated in top research universities. Some of the key findings in this 2010 report are that while the biases in the faculty hiring process have been eliminated, institutions may lack effective recruitment plans that attract women Ph.Ds. However, having a higher percentage of women in the search committee, and having a woman chair the search committee, are factors positively correlated with an increased number of women in the applicant pool. Another key finding was that having a mentor was an important predictor of whether a female associate professor would get grant funding; this correlation was not found among male associate professors. The report's recommendations included introducing new

programs and policies to attract and hire more women, involving more females on committees (like search and hiring committees), introducing mentoring, and introducing stop-the-clock tenure policies. All these findings and recommendations were taken into consideration when crafting the policies included in our survey (12) (4).

The examination of gender policies in academia has been carried out in countries outside the US as well, and a journal on gender diversity policies in universities in the Netherlands was used to come up with the 2 criteria by which each policy was evaluated. Not all policies are equally effective at achieving the goal of gender equality, so we ask about the quality of these policies. Keeping in mind that while some policies are easy to implement (such as requiring reports on salary data to improve transparency on pay disparities by gender), others (such as fair treatment of part-time tenure-track individuals) may require a change in social behavior which is harder to implement (13). Therefore our survey also asks about the feasibility of each policy in addition to its quality.

In order to get an idea of how to craft our empirical survey and what the response rate would be, we looked for other similar surveys done in the past. While a study of this exact nature regarding gender equality policies in STEM has not been conducted before, there have been other studies regarding policy issues in other fields. Similar policy surveys sent to school district superintendents were crafted such that there was space for open ended response, but the majority of questions had options from which the respondents could choose one that best suited them (14). Our survey is similarly crafted to be quickly and easily answered, with the option for respondents to comment on any policy if they felt like they wanted to write more.

Surveys of deans in other fields regarding policy issues show that deans generally respond to topics of relevance to them (15). Since family-friendly policies have become a hot topic in recent days, we believe that this survey is relevant to university administrators and that the respondents had a strong interest in responding to this survey. Indeed, the 334 responses, or 21.8% response rate (with data) is higher than the anticipated 250 responses (approximately 15% response rate) given the survey's length.

Previous policy surveys about family-friendly policies in higher education have inquired about policies such as stopping the tenure clock, working part-time, modifying job duties, child care, elder care, and support for dual career families. These surveys found that policies that were most often implemented in universities involving stopping the tenure clock, providing paid leave after childbirth in the form of sick or vacation leave, and unpaid dependent care leave in excess of the mandatory national Family and Medical Leave Act. They also found that universities find policy development easier when data on other universities' policies and work-family environment is available (16).

All the previous research on policies regarding gender equalities in different universities was synthesized and summarized in order to make this survey as concise as possible. In this survey, provosts, deans, associate deans and department chairs across the top 96 US research universities are asked to rank the quality and feasibility of 44 different university policies regarding gender equality. With this information, we answer the question of which policies university administrators feel are most useful in countering the gender imbalance in STEM fields, and which have the potential to do so if they can be implemented without much difficulty. Hopefully, university administrators will use these survey findings as a starting point for their

own policy assessments and reviews so that they may update old policies and implement new ones to help women in STEM fields balance their academic career and family successfully.

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CHAPTER 3: METHODS AND MATERIALS

Overview of methods and materials

This survey of deans and provosts hopes to elucidate practical policies that will enable women to succeed in tenure-track posts. The policies included in the survey have been generated using ongoing research programs on women in science, through other surveys, and through reports from ADVANCE centers, including Cornell's. The respondents of this survey used a 9-point Likert scale to assess these policies in terms of their quality and feasibility.

Methods

The population which was surveyed was the provosts, deans, associate deans and department chairs of STEM fields across the top 96 US research universities. This list of universities was created based on the 1994 Carnegie classification of Research I universities and notable universities that have emerged as big names in the field of STEM research since. The survey was sent out to the provosts of all 96 universities. The survey was also sent to deans and associate deans of colleges within those universities that taught STEM fields, as well as STEM department chairs at each university.

The survey questionnaire was sent out by email from the PI, Wendy Williams, and co-PI, Stephen Ceci. Follow-up emails were sent to those who did not reply within a month. Robert J. Sternberg, Dean of Arts and Sciences at Tufts University, an officer in the national organization of higher education administrators, and long-term collaborator and co-author with Wendy

Williams and Stephen Ceci advised and assisted in reaching and gaining the compliance of the targeted provosts and deans. The co-PI is acquainted with about a quarter of the provosts through membership at the National Science Foundation Advisory Board for Social, Economic and Behavioral Sciences and through boards at the National Academy of sciences, which helped in gaining responses from the deans and provosts surveyed.

For each respondent, publicly available data was collected on their gender, title, academic field (applicable only to department chairs), geographic region of their university (according to the 9 US census geographic divisions), and whether their university was public or private. After this data was recorded, the data was unidentified to maintain the anonymity and confidentiality of the respondents. In this thesis, only the gender, title and type of university (public or private) were used as factors for analysis.

Given that this is a hot topic of interest that a number of universities have been discussing in recent years, the 334 responses with data (21.8% response rate) have met our expected target of at least 250 replies with data (approximately 15% response rate). At the end of the project, we will share our results with the people who indicate an interest in knowing the outcome of this national canvass.

Materials

This survey has been developed using findings from ongoing research on women in science, surveys on work-life balance, and from ADVANCE center reports. The articles used in compiling the list of strategies in our survey are listed in the references section at the end of this

chapter. The survey is structured in a manner that lists the major gender equality policies that universities have implemented (or have thought of implementing). Respondents are asked to rate each policy on a scale of 1-9 according to 2 criteria – quality and feasibility.

The survey was crafted this way keeping in mind that provosts, deans, associate deans and department chairs have busy schedules and are likely to respond to a shorter, easier survey. Since the list of policies we are inquiring about is long, we asked for only 2 ratings with a uniform scale for both criteria. The 9-point scale was chosen because there are enough points to make the responses continuous instead of categorical, for easier analysis of the responses. In addition, it is easy to fill out quickly, and it has a center point (of 5) so that the people filling out the forms have a middle ground if they do not feel strongly about the listed policy.

Respondents were free to leave unstructured comments on their policy ratings, and indeed many respondents did leave comments on their ratings as well as whether these policies have or have not worked at their institution.

Appendix A and B are copies of the email survey and reminder that was sent out to the people included in the canvass.

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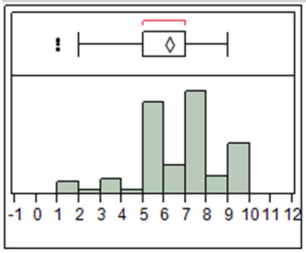
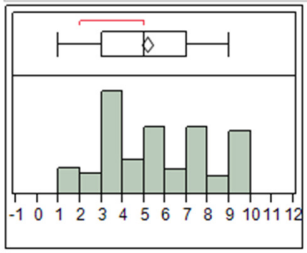
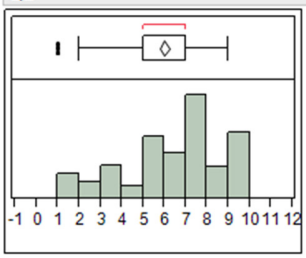
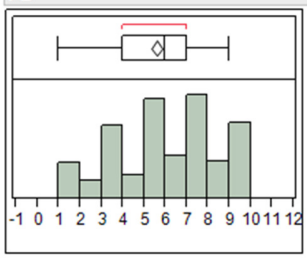
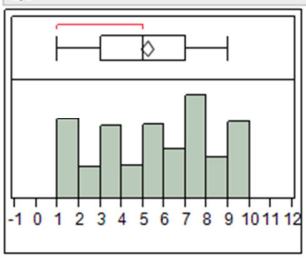
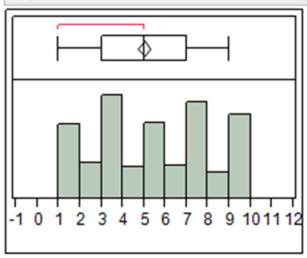
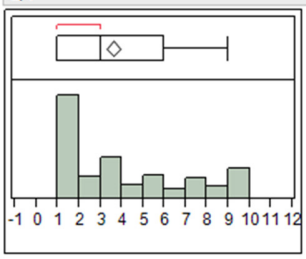
CHAPTER 4: RESULTS

The following table of graphs shows the distribution of responses for each policy's quality (Q) and feasibility (F). The numbers after Q and F indicate the number assigned to each policy in our survey. The summary statistics (mean, standard deviation, standard error, confidence interval bounds and number of observations) are also given alongside each histogram.

Table 1: Summary statistics and histograms for all responses

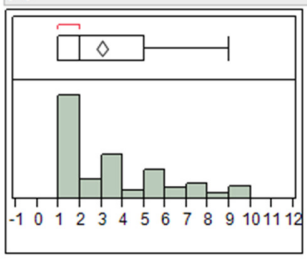
Q1  **Summary Statistics** Mean 6.2416918 Std Dev 1.8914998 Std Err Mean 0.1039662 Upper 95% Mean 6.446212 Lower 95% Mean 6.0371717 N 331	**F1**  **Summary Statistics** Mean 5.1480363 Std Dev 2.430704 Std Err Mean 0.1336036 Upper 95% Mean 5.4108584 Lower 95% Mean 4.8852142 N 331
Q2  **Summary Statistics** Mean 6.0090634 Std Dev 2.2995209 Std Err Mean 0.1263931 Upper 95% Mean 6.2577013 Lower 95% Mean 5.7604256 N 331	**F2**  **Summary Statistics** Mean 5.5969697 Std Dev 2.3722029 Std Err Mean 0.1305855 Upper 95% Mean 5.8538575 Lower 95% Mean 5.3400819 N 330
Q3  **Summary Statistics** Mean 5.186747 Std Dev 2.648845 Std Err Mean 0.1453743 Upper 95% Mean 5.4727209 Lower 95% Mean 4.900773 N 332	**F3**  **Summary Statistics** Mean 5.009009 Std Dev 2.6667142 Std Err Mean 0.146135 Upper 95% Mean 5.2964764 Lower 95% Mean 4.7215417 N 333

Q4



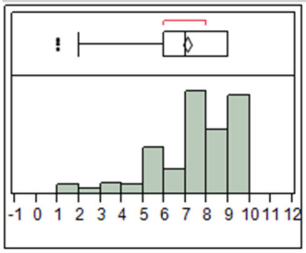
Summary Statistics	
Mean	3.6163142
Std Dev	2.8435317
Std Err Mean	0.1562946
Upper 95% Mean	3.9237737
Lower 95% Mean	3.3088547
N	331

F4



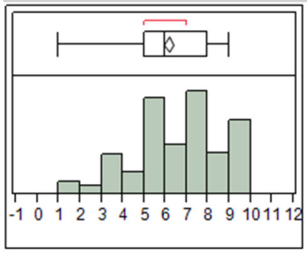
Summary Statistics	
Mean	3.030303
Std Dev	2.3966142
Std Err Mean	0.1319293
Upper 95% Mean	3.2898344
Lower 95% Mean	2.7707717
N	330

Q5



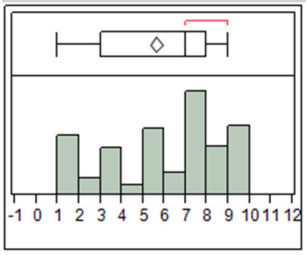
Summary Statistics	
Mean	7.0542169
Std Dev	1.8760891
Std Err Mean	0.1029638
Upper 95% Mean	7.2567627
Lower 95% Mean	6.851671
N	332

F5



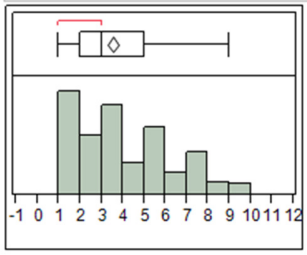
Summary Statistics	
Mean	6.1540785
Std Dev	2.0324206
Std Err Mean	0.1117119
Upper 95% Mean	6.3738359
Lower 95% Mean	5.9343212
N	331

Q6



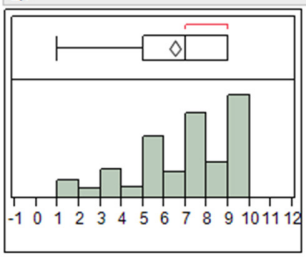
Summary Statistics	
Mean	5.6126126
Std Dev	2.6644848
Std Err Mean	0.1460129
Upper 95% Mean	5.8998396
Lower 95% Mean	5.3253856
N	333

F6



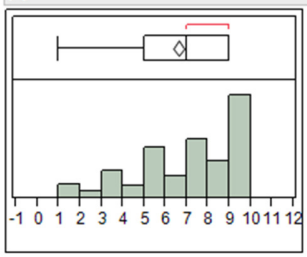
Summary Statistics	
Mean	3.5454545
Std Dev	2.2037673
Std Err Mean	0.1213134
Upper 95% Mean	3.7841023
Lower 95% Mean	3.3068067
N	330

Q7



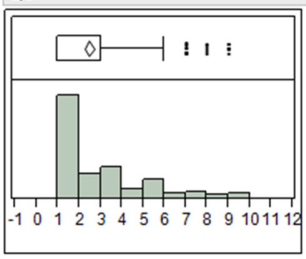
Summary Statistics	
Mean	6.4954407
Std Dev	2.3007443
Std Err Mean	0.1268441
Upper 95% Mean	6.7449714
Lower 95% Mean	6.24591
N	329

F7



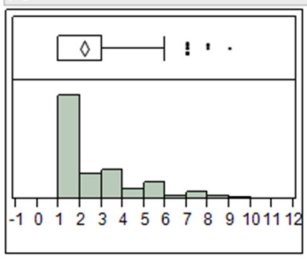
Summary Statistics	
Mean	6.6212121
Std Dev	2.3283971
Std Err Mean	0.128174
Upper 95% Mean	6.8733562
Lower 95% Mean	6.3690681
N	330

Q8



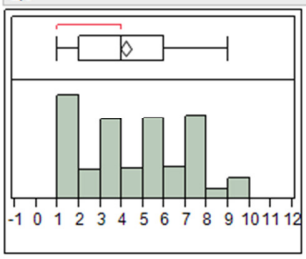
Summary Statistics	
Mean	2.4608434
Std Dev	2.0214043
Std Err Mean	0.110939
Upper 95% Mean	2.6790777
Lower 95% Mean	2.242609
N	332

F8



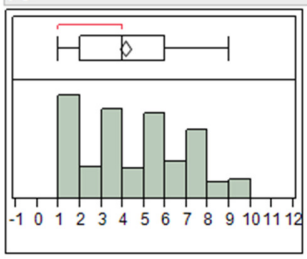
Summary Statistics	
Mean	2.1878788
Std Dev	1.7191497
Std Err Mean	0.0946361
Upper 95% Mean	2.3740469
Lower 95% Mean	2.0017106
N	330

Q9



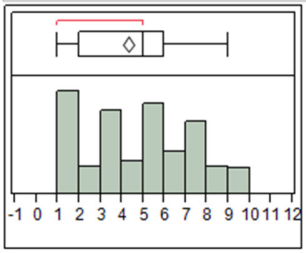
Summary Statistics	
Mean	4.1716867
Std Dev	2.4117123
Std Err Mean	0.1323599
Upper 95% Mean	4.4320594
Lower 95% Mean	3.9113141
N	332

F9



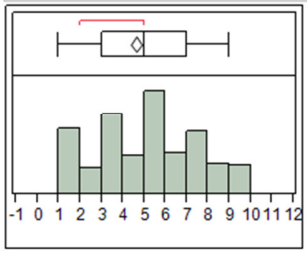
Summary Statistics	
Mean	4.1174699
Std Dev	2.3796841
Std Err Mean	0.1306021
Upper 95% Mean	4.3743847
Lower 95% Mean	3.860555
N	332

Q10



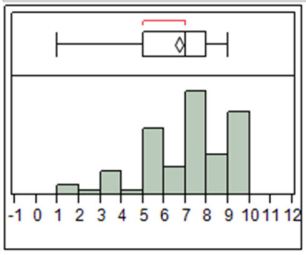
Summary Statistics	
Mean	4.331307
Std Dev	2.446306
Std Err Mean	0.1348692
Upper 95% Mean	4.5966248
Lower 95% Mean	4.0659892
N	329

F10



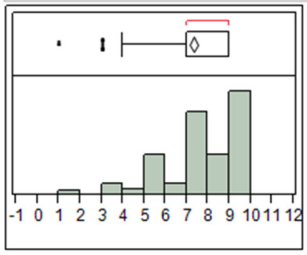
Summary Statistics	
Mean	4.6349693
Std Dev	2.3294511
Std Err Mean	0.1290164
Upper 95% Mean	4.8887819
Lower 95% Mean	4.3811567
N	326

Q11



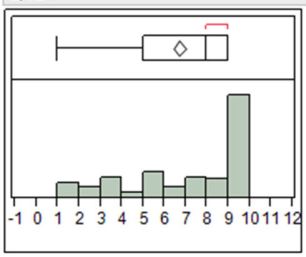
Summary Statistics	
Mean	6.6797583
Std Dev	1.9725805
Std Err Mean	0.1084228
Upper 95% Mean	6.8930454
Lower 95% Mean	6.4664712
N	331

F11



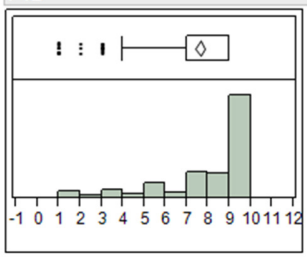
Summary Statistics	
Mean	7.326284
Std Dev	1.7309669
Std Err Mean	0.0951425
Upper 95% Mean	7.5134464
Lower 95% Mean	7.1391216
N	331

Q12



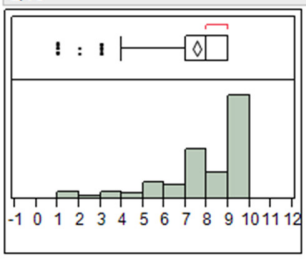
Summary Statistics	
Mean	6.7184466
Std Dev	2.7103127
Std Err Mean	0.1541843
Upper 95% Mean	7.0218344
Lower 95% Mean	6.4150588
N	309

F12



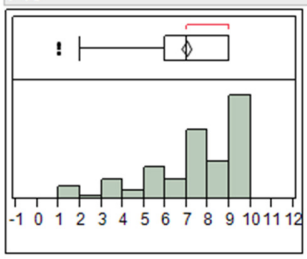
Summary Statistics	
Mean	7.6396104
Std Dev	2.0727775
Std Err Mean	0.1181075
Upper 95% Mean	7.8720129
Lower 95% Mean	7.4072078
N	308

Q13



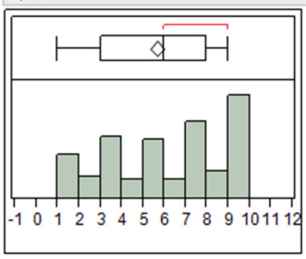
Summary Statistics	
Mean	7.5246914
Std Dev	1.9119977
Std Err Mean	0.1062221
Upper 95% Mean	7.7336659
Lower 95% Mean	7.3157168
N	324

F13



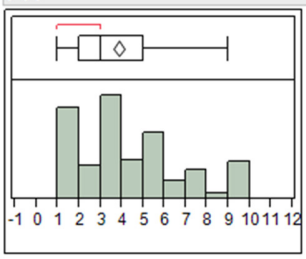
Summary Statistics	
Mean	6.9876543
Std Dev	2.1706961
Std Err Mean	0.1205942
Upper 95% Mean	7.2249036
Lower 95% Mean	6.750405
N	324

Q14



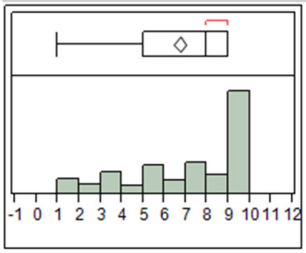
Summary Statistics	
Mean	5.6730769
Std Dev	2.7328264
Std Err Mean	0.1547158
Upper 95% Mean	5.9774991
Lower 95% Mean	5.3686548
N	312

F14



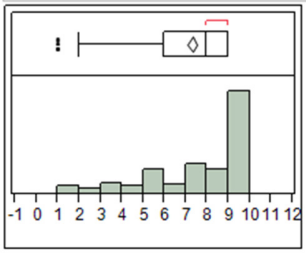
Summary Statistics	
Mean	3.8461538
Std Dev	2.406192
Std Err Mean	0.1362238
Upper 95% Mean	4.1141907
Lower 95% Mean	3.578117
N	312

Q15



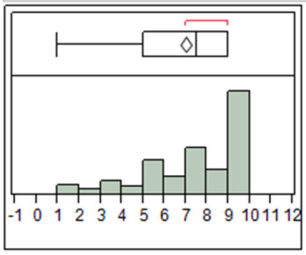
Summary Statistics	
Mean	6.7218543
Std Dev	2.5935236
Std Err Mean	0.1492405
Upper 95% Mean	7.0155412
Lower 95% Mean	6.4281674
N	302

F15



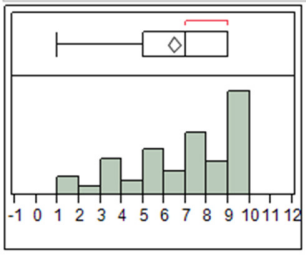
Summary Statistics	
Mean	7.3013245
Std Dev	2.2111012
Std Err Mean	0.1272346
Upper 95% Mean	7.5517064
Lower 95% Mean	7.0509426
N	302

Q16



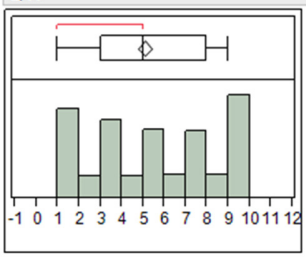
Summary Statistics	
Mean	7.028481
Std Dev	2.2273507
Std Err Mean	0.1252983
Upper 95% Mean	7.2750083
Lower 95% Mean	6.7819537
N	316

F16



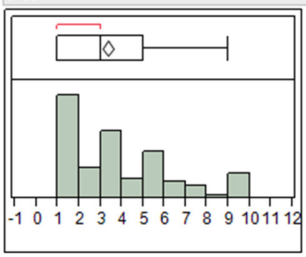
Summary Statistics	
Mean	6.456869
Std Dev	2.4348352
Std Err Mean	0.137625
Upper 95% Mean	6.7276595
Lower 95% Mean	6.1860785
N	313

Q17



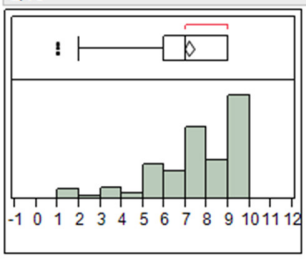
Summary Statistics	
Mean	5.0721311
Std Dev	2.8930572
Std Err Mean	0.165656
Upper 95% Mean	5.3981087
Lower 95% Mean	4.7461536
N	305

F17



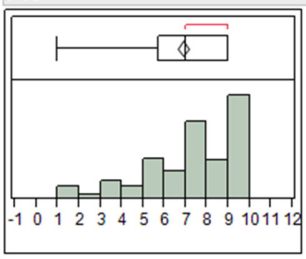
Summary Statistics	
Mean	3.3618421
Std Dev	2.4006307
Std Err Mean	0.1376856
Upper 95% Mean	3.6327832
Lower 95% Mean	3.090901
N	304

Q18



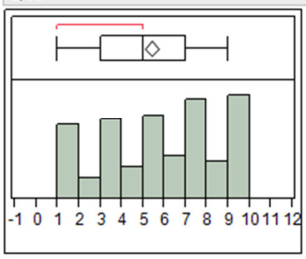
Summary Statistics	
Mean	7.1671924
Std Dev	1.9455717
Std Err Mean	0.1092742
Upper 95% Mean	7.3821894
Lower 95% Mean	6.9521955
N	317

F18



Summary Statistics	
Mean	6.8710692
Std Dev	2.1311227
Std Err Mean	0.1195074
Upper 95% Mean	7.1061971
Lower 95% Mean	6.6359412
N	318

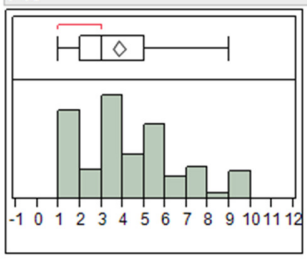
Q19



Summary Statistics

Mean	5.3966667
Std Dev	2.672664
Std Err Mean	0.1543063
Upper 95% Mean	5.7003307
Lower 95% Mean	5.0930027
N	300

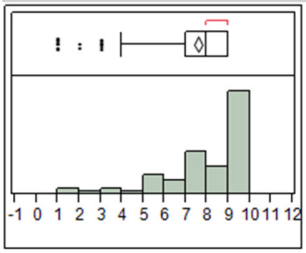
F19



Summary Statistics

Mean	3.8311258
Std Dev	2.2739222
Std Err Mean	0.1308495
Upper 95% Mean	4.0886215
Lower 95% Mean	3.5736301
N	302

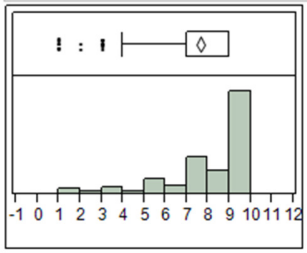
Q20



Summary Statistics

Mean	7.5907692
Std Dev	1.8613783
Std Err Mean	0.1032507
Upper 95% Mean	7.7938956
Lower 95% Mean	7.3876428
N	325

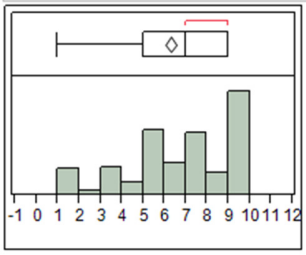
F20



Summary Statistics

Mean	7.6512346
Std Dev	1.9526829
Std Err Mean	0.1084824
Upper 95% Mean	7.8646558
Lower 95% Mean	7.4378133
N	324

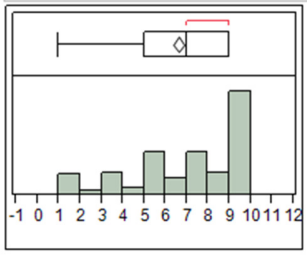
Q21



Summary Statistics

Mean	6.3209877
Std Dev	2.443553
Std Err Mean	0.1357529
Upper 95% Mean	6.5880593
Lower 95% Mean	6.0539161
N	324

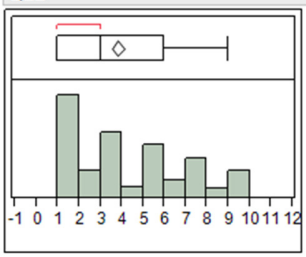
F21



Summary Statistics

Mean	6.619195
Std Dev	2.5306574
Std Err Mean	0.1408095
Upper 95% Mean	6.8962179
Lower 95% Mean	6.3421722
N	323

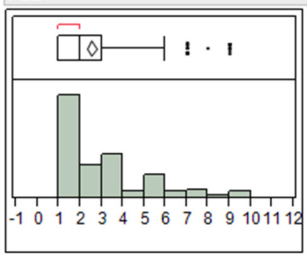
Q22



Summary Statistics

Mean	3.8291139
Std Dev	2.6081509
Std Err Mean	0.14672
Upper 95% Mean	4.1177889
Lower 95% Mean	3.540439
N	316

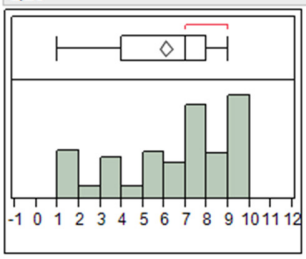
F22



Summary Statistics

Mean	2.5425868
Std Dev	1.9798631
Std Err Mean	0.1112002
Upper 95% Mean	2.7613731
Lower 95% Mean	2.3238004
N	317

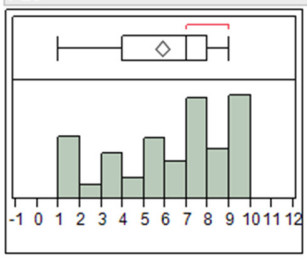
Q23



Summary Statistics

Mean	6.0608974
Std Dev	2.6438322
Std Err Mean	0.1496775
Upper 95% Mean	6.3554061
Lower 95% Mean	5.7663888
N	312

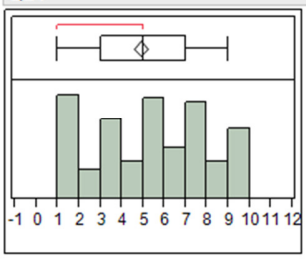
F23



Summary Statistics

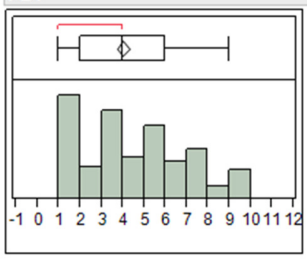
Mean	5.8451613
Std Dev	2.6783126
Std Err Mean	0.1521179
Upper 95% Mean	6.1444793
Lower 95% Mean	5.5458433
N	310

Q24



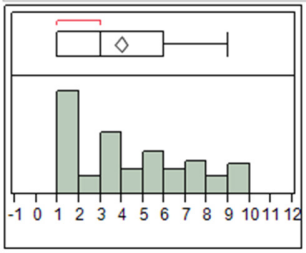
Summary Statistics	
Mean	4.897351
Std Dev	2.6261007
Std Err Mean	0.1511151
Upper 95% Mean	5.1947269
Lower 95% Mean	4.5999751
N	302

F24



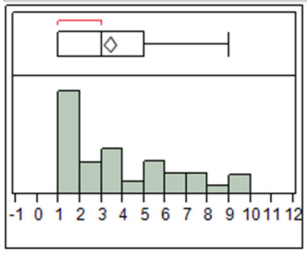
Summary Statistics	
Mean	4.0233333
Std Dev	2.4143084
Std Err Mean	0.1393902
Upper 95% Mean	4.2976434
Lower 95% Mean	3.7490233
N	300

Q25



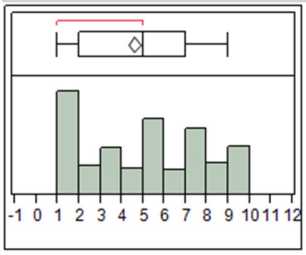
Summary Statistics	
Mean	3.9668874
Std Dev	2.6686745
Std Err Mean	0.153565
Upper 95% Mean	4.2690843
Lower 95% Mean	3.6646905
N	302

F25



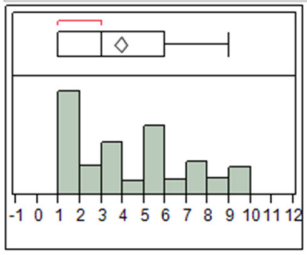
Summary Statistics	
Mean	3.3946488
Std Dev	2.5432048
Std Err Mean	0.1470773
Upper 95% Mean	3.6840906
Lower 95% Mean	3.105207
N	299

Q26



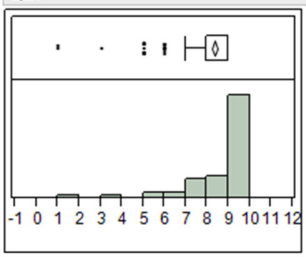
Summary Statistics	
Mean	4.5955414
Std Dev	2.7514932
Std Err Mean	0.1552757
Upper 95% Mean	4.9010576
Lower 95% Mean	4.2900252
N	314

F26



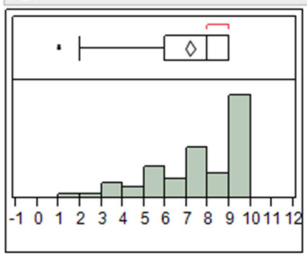
Summary Statistics	
Mean	3.9235669
Std Dev	2.6307141
Std Err Mean	0.1484598
Upper 95% Mean	4.2156722
Lower 95% Mean	3.6314616
N	314

Q27



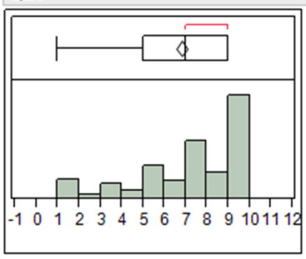
Summary Statistics	
Mean	8.3636364
Std Dev	1.2083343
Std Err Mean	0.0665166
Upper 95% Mean	8.4944879
Lower 95% Mean	8.2327848
N	330

F27



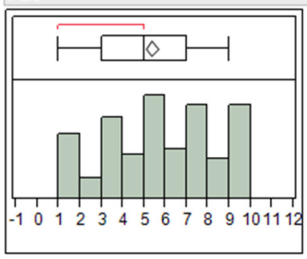
Summary Statistics	
Mean	7.1666667
Std Dev	2.0150146
Std Err Mean	0.1109229
Upper 95% Mean	7.3848743
Lower 95% Mean	6.9484591
N	330

Q28



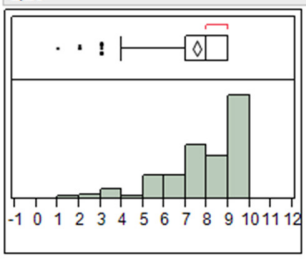
Summary Statistics	
Mean	6.8424242
Std Dev	2.3788621
Std Err Mean	0.130952
Upper 95% Mean	7.1000332
Lower 95% Mean	6.5848153
N	330

F28



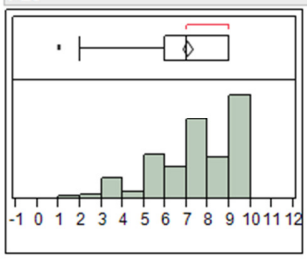
Summary Statistics	
Mean	5.3575758
Std Dev	2.5419317
Std Err Mean	0.1399287
Upper 95% Mean	5.6328437
Lower 95% Mean	5.0823079
N	330

Q29



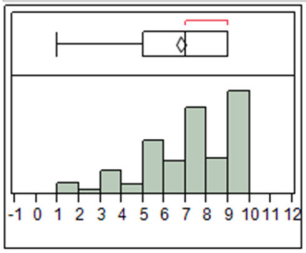
Summary Statistics	
Mean	7.5045872
Std Dev	1.6905939
Std Err Mean	0.0934901
Upper 95% Mean	7.6885071
Lower 95% Mean	7.3206672
N	327

F29



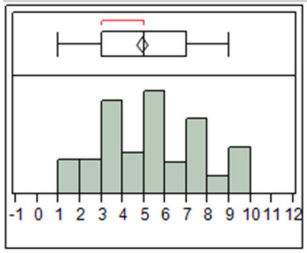
Summary Statistics	
Mean	7.0337423
Std Dev	1.8913803
Std Err Mean	0.1047539
Upper 95% Mean	7.2398236
Lower 95% Mean	6.8276611
N	326

Q30



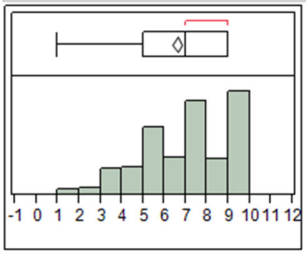
Summary Statistics	
Mean	6.7670807
Std Dev	2.083559
Std Err Mean	0.1161122
Upper 95% Mean	6.9955178
Lower 95% Mean	6.5386437
N	322

F30



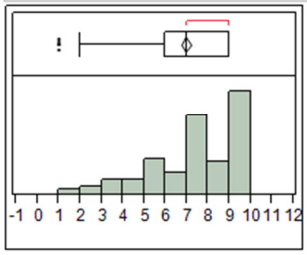
Summary Statistics	
Mean	4.8796296
Std Dev	2.279472
Std Err Mean	0.1266373
Upper 95% Mean	5.1287678
Lower 95% Mean	4.6304915
N	324

Q31



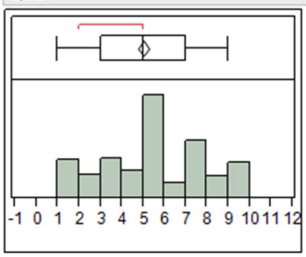
Summary Statistics	
Mean	6.6055046
Std Dev	2.0046802
Std Err Mean	0.1108591
Upper 95% Mean	6.823594
Lower 95% Mean	6.3874151
N	327

F31



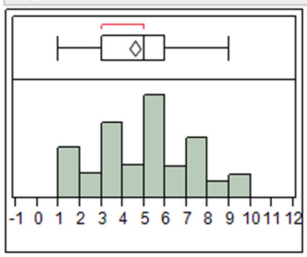
Summary Statistics	
Mean	6.9663609
Std Dev	2.0429664
Std Err Mean	0.1129763
Upper 95% Mean	7.1886155
Lower 95% Mean	6.7441063
N	327

Q32



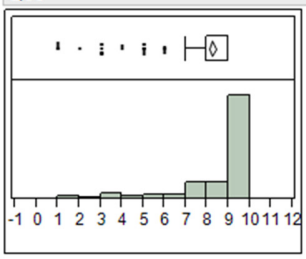
Summary Statistics	
Mean	5.0301003
Std Dev	2.3535844
Std Err Mean	0.1361113
Upper 95% Mean	5.2979614
Lower 95% Mean	4.7622392
N	299

F32



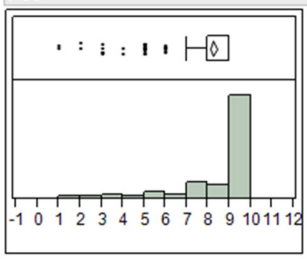
Summary Statistics	
Mean	4.5925926
Std Dev	2.2267596
Std Err Mean	0.1292097
Upper 95% Mean	4.8468787
Lower 95% Mean	4.3383065
N	297

Q33



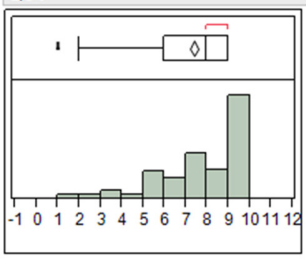
Summary Statistics	
Mean	8.2568807
Std Dev	1.5590838
Std Err Mean	0.0862175
Upper 95% Mean	8.4264937
Lower 95% Mean	8.0872678
N	327

F33



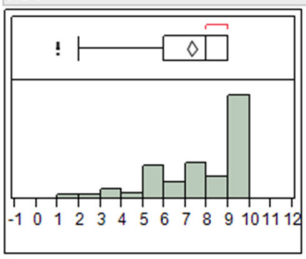
Summary Statistics	
Mean	8.2538226
Std Dev	1.5167093
Std Err Mean	0.0838742
Upper 95% Mean	8.4188257
Lower 95% Mean	8.0888196
N	327

Q34



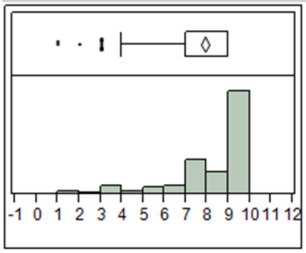
Summary Statistics	
Mean	7.4012158
Std Dev	1.8911214
Std Err Mean	0.1042609
Upper 95% Mean	7.6063202
Lower 95% Mean	7.1961114
N	329

F34



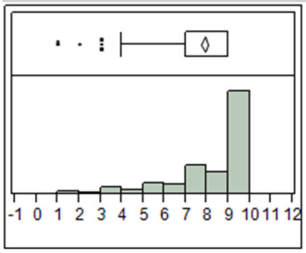
Summary Statistics	
Mean	7.2917933
Std Dev	2.0422279
Std Err Mean	0.1125917
Upper 95% Mean	7.5132862
Lower 95% Mean	7.0703004
N	329

Q35



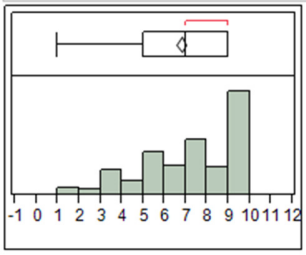
Summary Statistics	
Mean	7.92
Std Dev	1.6442192
Std Err Mean	0.0912049
Upper 95% Mean	8.0994285
Lower 95% Mean	7.7405715
N	325

F35



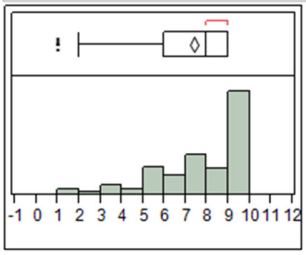
Summary Statistics	
Mean	7.8803681
Std Dev	1.6919123
Std Err Mean	0.0937064
Upper 95% Mean	8.0647157
Lower 95% Mean	7.6960205
N	326

Q36



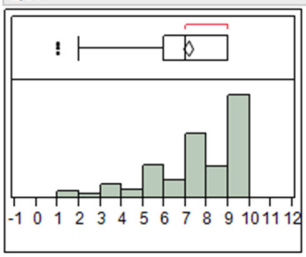
Summary Statistics	
Mean	6.7894737
Std Dev	2.1795807
Std Err Mean	0.1212751
Upper 95% Mean	7.0280653
Lower 95% Mean	6.550882
N	323

F36



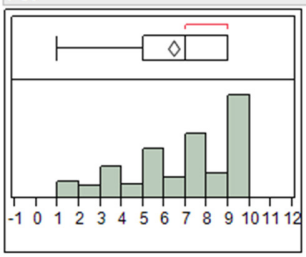
Summary Statistics	
Mean	7.3981481
Std Dev	1.9399969
Std Err Mean	0.1077776
Upper 95% Mean	7.6101829
Lower 95% Mean	7.1861134
N	324

Q37



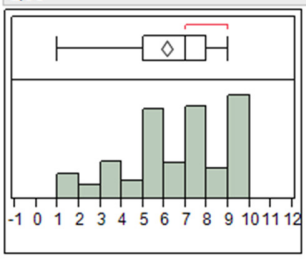
Summary Statistics	
Mean	7.1181818
Std Dev	2.0424008
Std Err Mean	0.1124305
Upper 95% Mean	7.3393551
Lower 95% Mean	6.8970085
N	330

F37



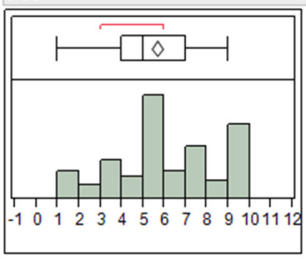
Summary Statistics	
Mean	6.4148607
Std Dev	2.4510162
Std Err Mean	0.1363782
Upper 95% Mean	6.6831655
Lower 95% Mean	6.1465559
N	323

Q38



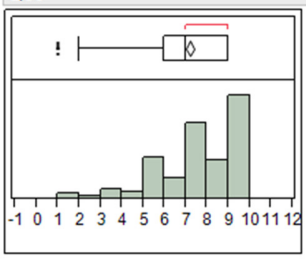
Summary Statistics	
Mean	6.1360759
Std Dev	2.3415832
Std Err Mean	0.1317243
Upper 95% Mean	6.3952467
Lower 95% Mean	5.8769052
N	316

F38



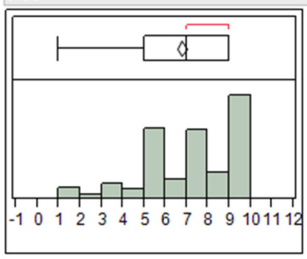
Summary Statistics	
Mean	5.6401274
Std Dev	2.398305
Std Err Mean	0.1353442
Upper 95% Mean	5.9064268
Lower 95% Mean	5.373828
N	314

Q39



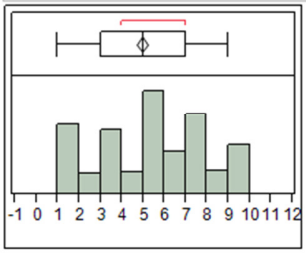
Summary Statistics	
Mean	7.2030303
Std Dev	1.8363081
Std Err Mean	0.1010854
Upper 95% Mean	7.4018856
Lower 95% Mean	7.004175
N	330

F39



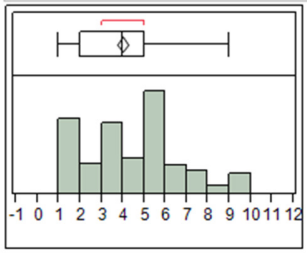
Summary Statistics	
Mean	6.7592593
Std Dev	2.1240348
Std Err Mean	0.1180019
Upper 95% Mean	6.9914087
Lower 95% Mean	6.5271099
N	324

Q40



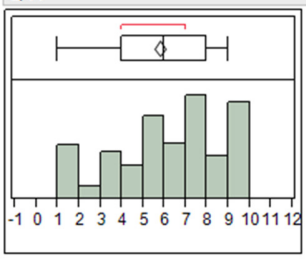
Summary Statistics	
Mean	4.9516129
Std Dev	2.4928858
Std Err Mean	0.1415864
Upper 95% Mean	5.2302083
Lower 95% Mean	4.6730175
N	310

F40



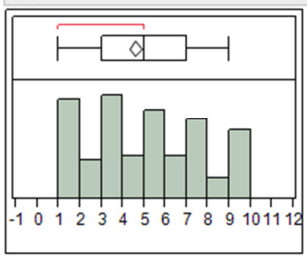
Summary Statistics	
Mean	4
Std Dev	2.1971258
Std Err Mean	0.1251929
Upper 95% Mean	4.2463447
Lower 95% Mean	3.7536553
N	308

Q41



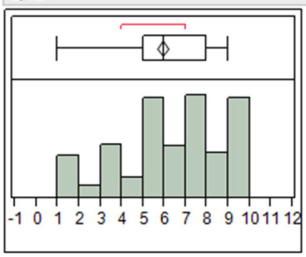
Summary Statistics	
Mean	5.7798165
Std Dev	2.4967137
Std Err Mean	0.1380686
Upper 95% Mean	6.0514343
Lower 95% Mean	5.5081987
N	327

F41



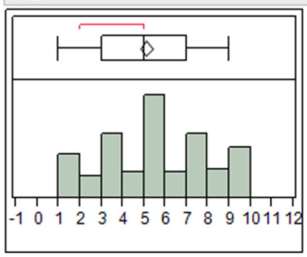
Summary Statistics	
Mean	4.5987654
Std Dev	2.6061605
Std Err Mean	0.1447867
Upper 95% Mean	4.8836095
Lower 95% Mean	4.3139214
N	324

Q42



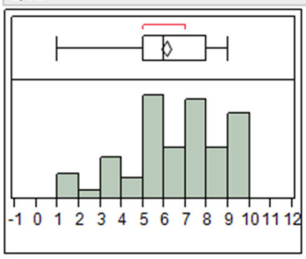
Summary Statistics	
Mean	5.9003115
Std Dev	2.4114376
Std Err Mean	0.1345933
Upper 95% Mean	6.1651111
Lower 95% Mean	5.635512
N	321

F42



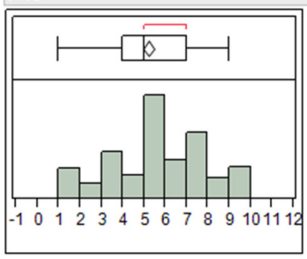
Summary Statistics	
Mean	5.1104101
Std Dev	2.4229491
Std Err Mean	0.1360864
Upper 95% Mean	5.37816
Lower 95% Mean	4.8426602
N	317

Q43



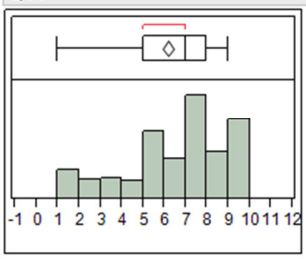
Summary Statistics	
Mean	6.0875
Std Dev	2.2068219
Std Err Mean	0.1233651
Upper 95% Mean	6.330212
Lower 95% Mean	5.844788
N	320

F43



Summary Statistics	
Mean	5.2075472
Std Dev	2.1769526
Std Err Mean	0.1220774
Upper 95% Mean	5.4477316
Lower 95% Mean	4.9673628
N	318

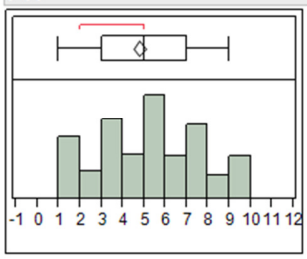
Q44



Summary Statistics

Mean	6.1538462
Std Dev	2.3493548
Std Err Mean	0.1303188
Upper 95% Mean	6.4102239
Lower 95% Mean	5.8974684
N	325

F44



Summary Statistics

Mean	4.7919255
Std Dev	2.3687076
Std Err Mean	0.1320029
Upper 95% Mean	5.0516256
Lower 95% Mean	4.5322253
N	322

CHAPTER 5: DISCUSSION

Overall Analysis

This survey aims to find the best and most feasible policies to help women balance work and family, and the natural first step is to look for policies that scored the highest in terms of both quality and feasibility. This sub-chapter outlines what the overall best policies are, and subsequent sub-chapters break down the policy ratings by gender, title and university type. It is helpful to keep in mind that the overall best policies are biased towards the views of male department chairs from public universities. 112 respondents, or about 1/3 of our respondents, were from this category. This bias is a firstly a result of the population demographic, which is largely male given that we are sampling STEM fields, secondly due to the larger number of department chairs than deans, associate deans or provosts sampled, and thirdly due to more public than private universities sampled through our list of the top 96 research universities. To account for this bias, after presenting the overall results, the sub-sections test whether the policies are biased by gender, title or university type.

From the results, the histograms for each policy's quality and feasibility ranking clearly show that the results are not normally distributed. This impacts our analysis to find the best policies, because this non-normality makes the mean of the data is an insufficient middle-point to distinguish the better policies from ones that are not as good. The median is a better statistic to use, because the median is not influenced by the distribution of the data. Still, the mean is a simpler statistic to use in further analysis, particularly when the data distribution is near normal. Therefore, in pinpointing the policies that have both high quality (Q) and high feasibility (F) rankings, we looked at both the mean and the median rankings of Q and F.

Looking at the overall mean results of Q vs F rankings,

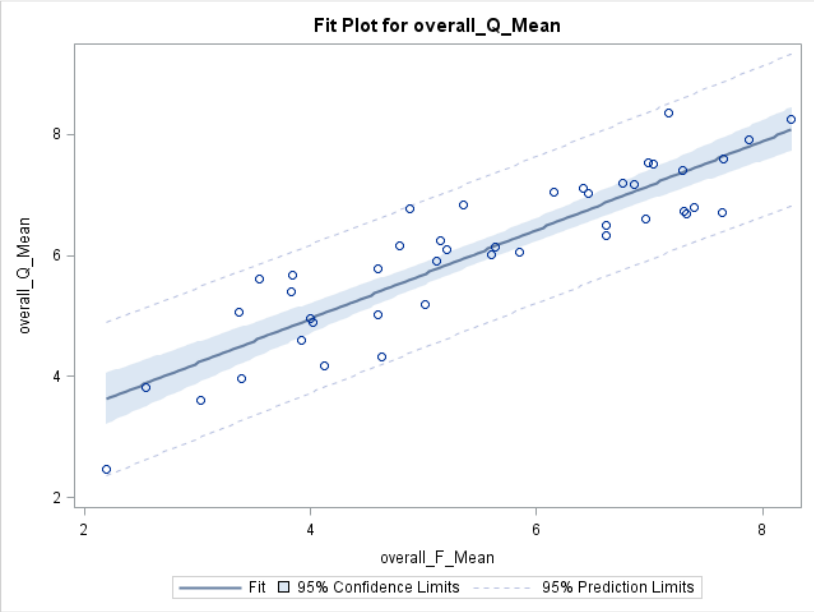


Figure 1: Correlation between overall mean Q and mean F

In general, the mean Q and F values are strongly correlated, meaning that if a respondent rated a policy as having high quality, they are likely to have given it a high feasibility ranking as well. This could be because the same logic could lead respondents to lower both the Q and F scores for a particular policy – for example, if a respondent knows that having quotas for promoting women goes against current laws, they would rank the policy proposition to set gender quotas for promotion to higher levels of rank (QF8) as not only being of low quality, but of low feasibility as well. It could also be that despite the survey's attempt to gain independent assessments of quality and feasibility, one rating influenced the other. For instance, if a policy was previously implemented in a university but failed, a respondent from that university might rank it as not only having low feasibility, but also having low quality because it failed. Conversely, respondents from a university with a successful gender balancing policy could rank that policy as having both high quality and high feasibility because of its success. Nonetheless, the aim of this survey was to find the best policies which have both high quality and high feasibility, so that goal is not hampered by correlations between respondents' Q and F ratings.

The best policies with higher than average ratings both for mean quality and feasibility will be in the upper right quarter of the plot. The criteria for upper-right policies are that (1) they have an overall mean Q rating that is higher than the median, and (2) they have an overall mean F rating that is higher than the median. There were 20 policies which met these criteria, having a higher Q score than the median value of 6.198 and a higher F score than the median of 4.477. These policies are: QF5, QF7, QF11, QF12, QF13, QF15, QF16, QF18, QF20, QF21, QF27, QF29, QF31, QF33, QF34, QF35, QF36, QF37, QF38 and QF39.

The plot of median Q vs median F for each policy is similar to the plot of mean Q vs mean F:

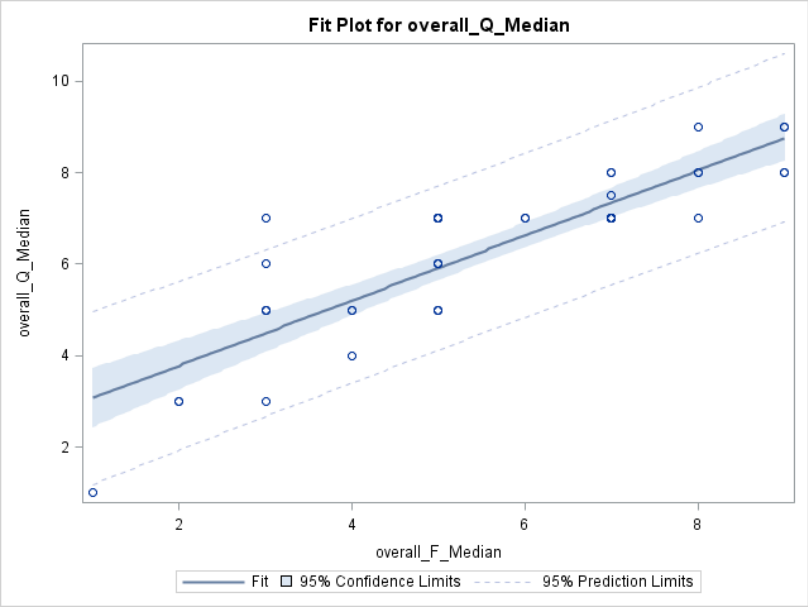


Figure 2: Correlation between overall median Q and median F

While the plots of mean and median Q and F values appear to follow a similar trend, in this case it might be more appropriate to evaluate the best policies based on the median instead of the mean because the responses to each question are not always normally distributed.

The process for evaluating the best policies is repeated, this time using the median Q and F values instead. The best policies with higher than average ratings both for median quality and feasibility will be in the upper right quarter of the plot. The criteria for upper-right policies are that (1) they have a median Q rating that is higher than the median of the medians, and (2) they have a median F rating that is higher than the median of the medians. Policies that scored higher than the median Q value of 7 and the median F value of 5 are: QF12, QF13, QF15, QF16, QF20, QF27, QF29, QF33, QF34 and QF35.

The list of best policies generated by looking at the medians is more restricted than the one generated by looking at the means. This could be explained by the fact that the underlying data distribution when generating the means and medians is non-normal, so the mean may not represent the mid-point of the rankings for quality and feasibility – if the rankings were skewed to a low value, for example a ranking of 2, the mean would be higher than the mid-point (i.e. the median), and if the rankings were skewed to a high value, for example a ranking of 8, the mean would be lower than the mid-point. This means that in the criteria for 'best policies', the mean would be much more lenient than the median and so more policies would gain a place in the list of best policies.

The list of best policies generated by the median is a more accurate list of which policies were ranked higher overall than the other policies in the questionnaire.

These best policies are:

QF12: Provide fully-paid leave for giving birth (tenure-track women only): For 6 weeks.

QF13: Provide fully-paid leave for giving birth (tenure-track women only): For 1 semester.

QF15: Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 6 weeks.

QF16: Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 semester.

QF20: Stop the tenure clock for raising children for up to 1 year per child: For mothers.

QF27: Provide on-campus childcare centers.

QF29: Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children.

QF33: Provide equal opportunities for women and men to lead committees and research groups.

QF34: Train department chairs on helping faculty manage work-life issues.

QF35: Develop mentoring programs to reduce isolation of female faculty.

Along with identifying the best overall policies, we also wanted to rank the policies in order of quality, feasibility, and both quality and feasibility together. Although the median is a good way to determine the cut-off point for identifying the best policies, the ranking of policies is done more easily using the mean rating of Q and F for each policy. The policies were ranked in order of their mean Q, mean F and average of mean Q and F scores.

The top 3 policies by mean Q values were:

Q27: Provide on-campus childcare centers.

Q33: Provide equal opportunities for women and men to lead committees and research groups.

Q35: Develop mentoring programs to reduce isolation of female faculty.

The top 3 policies by mean F values were:

F33: Provide equal opportunities for women and men to lead committees and research groups.

F35: Develop mentoring programs to reduce isolation of female faculty.

F20: Stop the tenure clock for raising children for up to 1 year per child: For mothers.

The top 3 policies by both Q and F values were:

QF33: Provide equal opportunities for women and men to lead committees and research groups.

QF35: Develop mentoring programs to reduce isolation of female faculty.

QF27: Provide on-campus childcare centers.

Just by looking at the top 3 policies by ranking, we see that although the graph of overall mean Q vs mean F indicated a fairly linear relationship between mean Q and mean F values, this relationship did not hold for all of the top policies. Policies 33 and 35 did have consistently high Q and F scores, and so in terms of implementation these two would probably be the easiest for administrators to work on. However, policy 27 was the most highly ranked in terms of quality but in terms of feasibility it was ranked 10^{th}. In addition, Policy 20 was within the top 3 policies in terms of feasibility, but in terms of quality it was ranked 6^{th}. When such policies have a

significant disparity between quality and feasibility rankings, it becomes difficult for administrators to decide whether to implement a policy of better quality which is less feasible, or a more feasible policy of lower quality. In such cases, the university administrators would have to look at the funds and resources available, and then decide which policies would most help them increase the number of women in their STEM departments.

An interesting point to note is that both for the mean and the median, the middle point of the Q score is higher than the middle point for the F score. This says that on the whole, the policies listed in the survey were of better quality than feasibility. Possibly, this is an indicator that not only are there policy barriers to helping women find a work-life balance, there are also barriers to implementing changes in these policies help these women succeed in science. Such barriers might be the cost of large-scale changes like providing on-campus childcare (QF27), cultural resistance to changes like placing more emphasis on teaching, service and administration for promotion (QF10), or even administrative difficulties such as that for accommodating shared tenure lines between partners (QF26). These policies may be of good quality, but the cost, cultural change and administrative change required in order to implement them makes them unfeasible. All universities face these barriers to some degree, but the hope is that looking at the quality and feasibility rankings together will give administrators an idea as to which of the good policies can also be easily implemented.

Provided below are tables that provide a complete ranking of the policies by mean quality, mean feasibility, and an average of the mean quality and mean feasibility scores. Administrators may find it useful to first look at the ranking of policies by quality, and examine their university-specific barriers to implementing these policies. The ranking of feasibility will provide a rough gauge as to the policies that have the least barriers to implementation. The third

table below which provides an average of the Q and F score from highest to lowest will give administrators an idea of how other administrators in similar positions balance the quality and feasibility of these policies.

Highest to lowest mean Quality score:

Table 2: Highest to lowest mean Quality score

Rank	Label	Policy	N	Mean	Median	Std Error
1	**Q27**	Provide on-campus childcare centers.	330	8.36364	9	0.06652
2	**Q33**	Provide equal opportunities for women and men to lead committees and research groups.	327	8.25688	9	0.08622
3	**Q35**	Develop mentoring programs to reduce isolation of female faculty.	325	7.92	9	0.0912
4	**Q20**	Stop the tenure clock for raising children for up to 1 year per child: For mothers.	325	7.59077	8	0.10325
5	**Q13**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 semester.	324	7.52469	8	0.10622
6	**Q29**	Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children.	327	7.50459	8	0.09349
7	**Q34**	Train department chairs on helping faculty manage work-life issues.	329	7.40122	8	0.10426
8	**Q39**	Support the deferred start of fellowships to allow for caregiving.	330	7.20303	7	0.10109
9	**Q18**	Provide teaching relief for new tenure-track parents: 1 semester.	317	7.16719	7	0.10927
10	**Q37**	Support no-cost extensions for caregiving on grants and fellowships.	330	7.11818	7	0.11243
11	**Q5**	Explore/endorse couples-hiring.	332	7.05422	7	0.10296
12	**Q16**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1	316	7.02848	7.5	0.1253

		semester.				
13	**Q28**	Provide subsidies for on-campus or off-campus childcare services.	330	6.84242	7	0.13095
14	**Q36**	Convene gender-equity workshops focusing on issues such as workplace climate and resource allocation.	323	6.78947	7	0.12128
15	**Q30**	Offer family housing subsidies in regions where young families are priced out of the market.	322	6.76708	7	0.11611
16	**Q15**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 6 weeks.	302	6.72185	8	0.14924
17	**Q12**	Provide fully-paid leave for giving birth (tenure-track women only): For 6 weeks.	309	6.71845	8	0.15418
18	**Q11**	Conduct (and disseminate) institutional research on gender equity.	331	6.67976	7	0.10842
19	**Q31**	Use technology to allow women and men with children to work and attend meetings from home.	327	6.6055	7	0.11086
20	**Q7**	Instruct search committees to ignore family-related gaps in CVs.	329	6.49544	7	0.12684
21	**Q21**	Stop the tenure clock for raising children for up to 1 year per child: For fathers.	324	6.32099	7	0.13575
22	**Q1**	Have a woman chair search committees whenever possible.	331	6.24169	7	0.10397
23	**Q44**	Endorse supplemental funding for hiring postdocs to maintain momentum during family leaves.	325	6.15385	7	0.13032
24	**Q38**	Support part-time fellowships and grants.	316	6.13608	7	0.13172
25	**Q43**	Provide support to help faculty engaging in caregiving duties to catch up mid-career.	320	6.0875	6	0.12337
26	**Q23**	Allow option of changing from full-time to part-time tenure-track: Short Term (up to 1 year).	312	6.0609	7	0.14968
27	**Q2**	Reward departments that hire women.	331	6.00906	7	0.12639
28	**Q42**	Support grants for retooling after maternity leave.	321	5.90031	6	0.13459

29	**Q41**	Support conference and meeting grant supplements to cover cost of PI's dependent care travel (children's and childcare workers' expenses allowable).	327	5.77982	6	0.13807
30	**Q14**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 year.	312	5.67308	6	0.15472
31	**Q6**	Guarantee academic employment for professional spouses/partners.	333	5.61261	7	0.14601
32	**Q19**	Provide teaching relief for new tenure-track parents: 1 year.	300	5.39667	5	0.15431
33	**Q3**	Set gender goals for candidate pools.	332	5.18675	5	0.14537
34	**Q17**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 year.	305	5.07213	5	0.16566
35	**Q32**	Provide an academic role for women who have left professional positions to have children.	299	5.0301	5	0.13611
36	**Q40**	Endorse supplements to offset PI's productivity loss due to family-related absences.	310	4.95161	5	0.14159
37	**Q24**	Allow option of changing from full-time to part-time tenure-track: Medium Term (2-5 years).	302	4.89735	5	0.15112
38	**Q26**	Support requests for shared tenure lines (between partners).	314	4.59554	5	0.15528
39	**Q10**	For promotion, increase value of teaching and service plus administration.	329	4.33131	5	0.13487
40	**Q9**	Set gender quotas for important committees and administrative posts.	332	4.17169	4	0.13236
41	**Q25**	Allow option of changing from full-time to part-time tenure-track: Permanent.	302	3.96689	3	0.15357
42	**Q22**	Change timing of tenure assessment to not coincide with peak fertility and childrearing demands.	316	3.82911	3	0.14672
43	**Q4**	Set quotas for new lines: women-only lines until critical mass reached.	331	3.61631	3	0.15629
44	**Q8**	Set gender quotas (minimum thresholds) for promotion to higher	332	2.46084	1	0.11094

		levels of rank (e.g., full professor).				

Highest to lowest mean Feasibility score:

Table 3: Highest to lowest mean Feasibility score

Rank	Label	Policy	N	Mean	Median	Std Error
1	**F33**	Provide equal opportunities for women and men to lead committees and research groups.	327	8.25382	9	0.08387
2	**F35**	Develop mentoring programs to reduce isolation of female faculty.	326	7.88037	9	0.09371
3	**F20**	Stop the tenure clock for raising children for up to 1 year per child: For mothers.	324	7.65123	9	0.10848
4	**F12**	Provide fully-paid leave for giving birth (tenure-track women only): For 6 weeks.	308	7.63961	9	0.11811
5	**F36**	Convene gender-equity workshops focusing on issues such as workplace climate and resource allocation.	324	7.39815	8	0.10778
6	**F11**	Conduct (and disseminate) institutional research on gender equity.	331	7.32628	7	0.09514
7	**F15**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 6 weeks.	302	7.30132	8	0.12723
8	**F34**	Train department chairs on helping faculty manage work-life issues.	329	7.29179	8	0.11259
9	**F27**	Provide on-campus childcare centers.	330	7.16667	8	0.11092
10	**F29**	Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children.	326	7.03374	7	0.10475
11	**F13**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 semester.	324	6.98765	7	0.12059

12	**F31**	Use technology to allow women and men with children to work and attend meetings from home.	327	6.96636	7	0.11298
13	**F18**	Provide teaching relief for new tenure-track parents: 1 semester.	318	6.87107	7	0.11951
14	**F39**	Support the deferred start of fellowships to allow for caregiving.	324	6.75926	7	0.118
15	**F7**	Instruct search committees to ignore family-related gaps in CVs.	330	6.62121	7	0.12817
16	**F21**	Stop the tenure clock for raising children for up to 1 year per child: For fathers.	323	6.6192	7	0.14081
17	**F16**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 semester.	313	6.45687	7	0.13763
18	**F37**	Support no-cost extensions for caregiving on grants and fellowships.	323	6.41486	7	0.13638
19	**F5**	Explore/endorse couples-hiring.	331	6.15408	6	0.11171
20	**F23**	Allow option of changing from full-time to part-time tenure-track: Short Term (up to 1 year).	310	5.84516	7	0.15212
21	**F38**	Support part-time fellowships and grants.	314	5.64013	5	0.13534
22	**F2**	Reward departments that hire women.	330	5.59697	6	0.13059
23	**F28**	Provide subsidies for on-campus or off-campus childcare services.	330	5.35758	5	0.13993
24	**F43**	Provide support to help faculty engaging in caregiving duties to catch up mid-career.	318	5.20755	5	0.12208
25	**F1**	Have a woman chair search committees whenever possible.	331	5.14804	5	0.1336
26	**F42**	Support grants for retooling after maternity leave.	317	5.11041	5	0.13609
27	**F3**	Set gender goals for candidate pools.	333	5.00901	5	0.14614
28	**F30**	Offer family housing subsidies in regions where young families are priced out of the market.	324	4.87963	5	0.12664
29	**F44**	Endorse supplemental funding for hiring postdocs to maintain momentum during family leaves.	322	4.79193	5	0.132
30	**F10**	For promotion, increase value of	326	4.63497	5	0.12902

		teaching and service plus administration.				
31	**F41**	Support conference and meeting grant supplements to cover cost of PI's dependent care travel (children's and childcare workers' expenses allowable).	324	4.59877	5	0.14479
32	**F32**	Provide an academic role for women who have left professional positions to have children.	297	4.59259	5	0.12921
33	**F9**	Set gender quotas for important committees and administrative posts.	332	4.11747	4	0.1306
34	**F24**	Allow option of changing from full-time to part-time tenure-track: Medium Term (2-5 years).	300	4.02333	4	0.13939
35	**F40**	Endorse supplements to offset PI's productivity loss due to family-related absences.	308	4	4	0.12519
36	**F26**	Support requests for shared tenure lines (between partners).	314	3.92357	3	0.14846
37	**F14**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 year.	312	3.84615	3	0.13622
38	**F19**	Provide teaching relief for new tenure-track parents: 1 year.	302	3.83113	3	0.13085
39	**F6**	Guarantee academic employment for professional spouses/partners.	330	3.54545	3	0.12131
40	**F25**	Allow option of changing from full-time to part-time tenure-track: Permanent.	299	3.39465	3	0.14708
41	**F17**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 year.	304	3.36184	3	0.13769
42	**F4**	Set quotas for new lines: women-only lines until critical mass reached.	330	3.0303	2	0.13193
43	**F22**	Change timing of tenure assessment to not coincide with peak fertility and childrearing demands.	317	2.54259	2	0.1112
44	**F8**	Set gender quotas (minimum thresholds) for promotion to higher levels of rank (e.g., full professor).	330	2.18788	1	0.09464

To get a rough idea of the ranking of each policy according to both Q and F scores, we added the mean Q and mean F scores for each policy and divided the result by 2, then sorted the policies according to this average score. Since the number of respondents differed for each Q and F result, the N is not given in the table below. In this case the median has no significant value so that is ignored as well. The mean and standard error values in the table below are calculated as follows:

Mean of (Q+F)/2= (mean Q+ mean F)/2

SE of (Q+F)/2 = $\sqrt{[(SE(Q)^2 + SE(F)^2)/2]}$

Highest to lowest ranking of each policy by both mean Q and mean F scores:

Table 4: Highest to lowest ranking by both mean Q and mean F scores

Rank	Label	Policy	Mean of (Q+F)/2	Std Error of (Q+F)/2
1	**QF33**	Provide equal opportunities for women and men to lead committees and research groups.	8.25535	0.08505
2	**QF35**	Develop mentoring programs to reduce isolation of female faculty.	7.90018	0.09246
3	**QF27**	Provide on-campus childcare centers.	7.76515	0.09146
4	**QF20**	Stop the tenure clock for raising children for up to 1 year per child: For mothers.	7.621	0.1059
5	**QF34**	Train department chairs on helping faculty manage work-life issues.	7.3465	0.10851
6	**QF29**	Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children.	7.26916	0.09928
7	**QF13**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 semester.	7.25617	0.11364
8	**QF12**	Provide fully-paid leave for giving birth (tenure-track women only): For 6 weeks.	7.17903	0.13734
9	**QF36**	Convene gender-equity workshops focusing on issues such as workplace climate and resource allocation.	7.09381	0.11473
10	**QF18**	Provide teaching relief for new tenure-track parents:	7.01913	0.11451

		1 semester.		
11	**QF15**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 6 weeks.	7.01159	0.13867
12	**QF11**	Conduct (and disseminate) institutional research on gender equity.	7.00302	0.102
13	**QF39**	Support the deferred start of fellowships to allow for caregiving.	6.98114	0.10987
14	**QF31**	Use technology to allow women and men with children to work and attend meetings from home.	6.78593	0.11192
15	**QF37**	Support no-cost extensions for caregiving on grants and fellowships.	6.76652	0.12498
16	**QF16**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 semester.	6.74268	0.13161
17	**QF5**	Explore/endorse couples-hiring.	6.60415	0.10743
18	**QF7**	Instruct search committees to ignore family-related gaps in CVs.	6.55833	0.12751
19	**QF21**	Stop the tenure clock for raising children for up to 1 year per child: For fathers.	6.47009	0.1383
20	**QF28**	Provide subsidies for on-campus or off-campus childcare services.	6.1	0.13551
21	**QF23**	Allow option of changing from full-time to part-time tenure-track: Short Term (up to 1 year).	5.95303	0.1509
22	**QF38**	Support part-time fellowships and grants.	5.8881	0.13355
23	**QF30**	Offer family housing subsidies in regions where young families are priced out of the market.	5.82336	0.12149
24	**QF2**	Reward departments that hire women.	5.80302	0.12851
25	**QF1**	Have a woman chair search committees whenever possible.	5.69486	0.11971
26	**QF43**	Provide support to help faculty engaging in caregiving duties to catch up mid-career.	5.64752	0.12272
27	**QF42**	Support grants for retooling after maternity leave.	5.50536	0.13534
28	**QF44**	Endorse supplemental funding for hiring postdocs to maintain momentum during family leaves.	5.47289	0.13116
29	**QF41**	Support conference and meeting grant supplements to cover cost of PI's dependent care travel (children's and childcare workers' expenses allowable).	5.18929	0.14147
30	**QF3**	Set gender goals for candidate pools.	5.09788	0.14576
31	**QF32**	Provide an academic role for women who have left professional positions to have children.	4.81135	0.13271
32	**QF14**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 year.	4.75962	0.14576
33	**QF19**	Provide teaching relief for new tenure-track parents: 1 year.	4.6139	0.14306
34	**QF6**	Guarantee academic employment for professional	4.57903	0.13423

		spouses/partners.		
35	**QF10**	For promotion, increase value of teaching and service plus administration.	4.48314	0.13198
36	**QF40**	Endorse supplements to offset PI's productivity loss due to family-related absences.	4.47581	0.13364
37	**QF24**	Allow option of changing from full-time to part-time tenure-track: Medium Term (2-5 years).	4.46034	0.14537
38	**QF26**	Support requests for shared tenure lines (between partners).	4.25955	0.15191
39	**QF17**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 year.	4.21699	0.15231
40	**QF9**	Set gender quotas for important committees and administrative posts.	4.14458	0.13148
41	**QF25**	Allow option of changing from full-time to part-time tenure-track: Permanent.	3.68077	0.15036
42	**QF4**	Set quotas for new lines: women-only lines until critical mass reached.	3.32331	0.14463
43	**QF22**	Change timing of tenure assessment to not coincide with peak fertility and childrearing demands.	3.18585	0.13018
44	**QF8**	Set gender quotas (minimum thresholds) for promotion to higher levels of rank (e.g., full professor).	2.32436	0.10311

Analysis by Gender

The breakdown of the 334 respondents by gender showed that we had 246 male and 88 female respondents for a ratio of 2.8 to 1. Given that the set of provosts, deans, associate deans and department chairs in STEM fields to whom the survey was sent was predominantly male, this skewed male to female respondent ratio is not surprising. For the purposes of analysis, we take it that the survey respondents answered in a manner typical of their gender. This way we could group the males and females and analyze differences in the way they responded.

First we looked at the quality ratings for each policy and tested the null hypothesis that males and females rated the quality of each policy similarly at a 5% significance level. The tests that rejected the null hypothesis, i.e. the policies for which males and females had significantly different quality ratings, were: Q10, Q11, Q26, Q40, Q41, Q43 and Q44. Females rated all these policies as having higher quality than males did. This is no surprise, considering that the policies are meant to help women in academia. What is important is to look at reasons why males would consider these policies to be of comparatively low quality.

Q10: For promotion, increase value of teaching and service plus administration.

Q11: Conduct (and disseminate) institutional research on gender equity.

Q26: Support requests for shared tenure lines (between partners).

Q40: Endorse supplements to offset PI's productivity loss due to family-related absences.

Q41: Support conference and meeting grant supplements to cover cost of PI's dependent care travel (children's and childcare workers' expenses allowable).

Q43: Provide support to help faculty engaging in caregiving duties to catch up mid-career.

Q44: Endorse supplemental funding for hiring postdocs to maintain momentum during family leaves.

In the survey, Q10 and Q11 were two out of four policies under the category 'Addressing gender biases after hiring'. The other two policies involved setting gender quotas for promotions (Q8) and for important committees and administrative posts (Q9), which were ranked low in quality and feasibility by both males and females. Q10 received low rankings from both males and females, perhaps because the respondents sampled are administrators in top research universities and so the universities' primary objective is research, not teaching or service. However, Q10 may have received particularly low scores from males who do not see research and teaching to have equal demands on time as research, and so are more reluctant to give a greater weightage to teaching and service when considering promotions. Q11 may have gotten lower quality scores from men for a different reason – institutional research on gender equity has a greater effect on women because it highlights that their status needs to be on par with that of men. On the other hand, men are not affected by it because they are the benchmark by which the achievements, opportunities and pay available to women are compared. These reasons could explain why Q10 and Q11 were rated as being of lower quality by men than women.

While Q26 is in a different category from the others, it is similar to Q40, 43 and 44 in that these policies relieve women of the burden of work by shifting the workload onto males. Males would have to pick up the responsibility of maintaining momentum of the lab while the

female members take a family-related break from work. This might explain why these policies were rated of being of lower quality by males than females.

It is not immediately clear why Q41 would be rated lower by males than by females, but possibly male respondents would see covering family expenses under university policy as difficult to explain to other faculty who do not have dependents.

The second test we did was a repeat of the first test, but this time looking for differences in feasibility ratings for each policy between males and females. The following policies had significantly different feasibility ratings when broken down by gender: F1, F7, F12, F13, F14, F17, F21, F26 and F32. Females rated policies F21 and F26 as more feasible than males did, while males rated policies F1, F7, F12, F13, F14, F17 and F32 as more feasible than females.

F21: Stop the tenure clock for raising children for up to 1 year per child: For fathers.

F26: Support requests for shared tenure lines (between partners).

A number of respondents noted in comments that they do let female faculty have schemes to allow a break in the tenure clock, most commonly for a maximum of 1 year per child for 2 children. Females with knowledge about these policies may view extending this policy to fathers as feasible, while males who are not used to taking time off to raise their children may be more reserved about calling this a feasible option. Moreover, if both males and females were to take time off for raising children, the overall productivity of a research lab could decrease and that would be detrimental to a lab that depends on productivity for grants and funding. As for supporting requests for shared tenure lines, many respondents voiced concern about how this policy would be monitored for fairness and what would happen if the partners were to separate. Although females may see this policy as a viable way to balance work and family, males may see

it as more academic responsibility for them with less recognition, particularly if the female partner takes more leave for family responsibilities. These reasons would explain why F21 and F26 were given lower ratings by males than by females.

On the flip side, the policies which were given higher feasibility ratings by males than by females were:

F1: Have a woman chair search committees whenever possible.

F7: Instruct search committees to ignore family-related gaps in CVs.

F12: Provide fully-paid leave for giving birth (tenure-track women only): For 6 weeks

F13: Provide fully-paid leave for giving birth (tenure-track women only): For 1 semester

F14: Provide fully-paid leave for giving birth (tenure-track women only): For 1 year

F17: Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 year

F32: Provide an academic role for women who have left professional positions to have children.

To men, F1 seems like a straightforward way to put women in the spotlight. Coupled with the evidence that putting women at the helm of search committees aids in hiring new women into STEM academic fields (12), it is surprising that women would reject this policy on grounds of feasibility. However, the comments provided by women respondents on this policy clarify that because of the small number of women in STEM fields, such administrative tasks fall on them more often than their male counterparts. This affects their productivity, and they see

their male co-workers who are not involved in such administrative jobs getting more research done. The consensus seems to be that this policy is unfeasible unless limited in some way so as not to over-burden women with these administrative tasks.

Women respondents also voiced concern about the feasibility of instructing search committees to ignore family-related gaps in CVs, questioning how search committees would know that gaps are family-related, and also questioning how impartial search committees could be towards gaps in the commitment to research when considering candidates for the tenure-track. Presumably, the majority of males have not had to consider how a family-related gap would look on their CV, but this would be consideration for many females who are looking to balance work and family. The same reasoning applies to F12, 13, 14 and 17, where taking time off for giving birth would appear as a gap in the woman's CV. This would explain why women are more cautious about the feasibility of such policies than males are.

As for F32, many respondents commented that 'providing an academic role' was a vague phrase, and so it was difficult to determine whether this would be a good policy and if it would be feasible at all. It is unclear why women gave this policy a lower feasibility rating than men, but perhaps women give more thought to alternate career paths and are more aware of the non-tenure-track options available. Possibly, it is the lack of such viable alternate career paths that led the female respondents to give this policy a low feasibility score than males did.

Putting the results of the tests for Q and F together, the only policy for which both Q and F ratings were polarized by gender was QF26: Support requests for shared tenure lines (between partners), which received higher quality and feasibility ratings from females than males. As explained earlier, both the low quality and low feasibility rankings by males can be attributed to

the notion that this policy would shift the responsibility of research more onto males while simultaneously reducing the individual credit they get for their work.

The third test we did was to look at the correlation between Q and F ratings for each policy for males, with the null hypothesis being that there is no correlation between Q and F for males, again at a 5% significance level. All the policy tests rejected this null hypothesis, indicating that the ratings for Q and F for each policy were indeed significantly correlated for males. This is in line with the overall findings that the responses for Q and F are significantly correlated.

The test was repeated, this time looking at the responses from females. This time, there were three policies that that had significantly different Q and F results from females. These policies were QF4, QF8 and QF27. .

For QF4 and QF8, females gave a significantly higher quality rating than males, but gave similar feasibility ratings as males. For QF27, males and females gave about equal quality ratings, but females gave lower feasibility ratings.

QF4: Set quotas for new lines: women-only lines until critical mass reached.

QF8: Set gender quotas (minimum thresholds) for promotion to higher levels of rank (e.g., full professor).

QF27: Provide on-campus childcare centers.

For QF4 and 8, a number of respondents commented that these policies are not in line with federal hiring regulations, and so gave these policies low feasibility ratings. This could explain the approximately equal quality ratings for these two policies. In terms of quality,

however, if the policy were indeed implementable without legal consequences, it is possible that female respondents see a structural change in hiring to increase in women in STEM fields as a step towards gender equality more so than males do.

As for QF27, it is no clear why females in particular would rate on-campus childcare facilities as less feasible than males. However, some female respondents' comments gave insight into why females gave lower feasibility scores. First of all the childcare center on campus would be overly burdened by the number of children they would have to take care of. Second, since the childcare center would be convenient for many parents who work on campus, the center could charge customers a premium. This could possibly lead to other childcare centers in the area increasing their fees as well. While this is a logical thought process, it is more likely that these concerns would come to mind for females answering this survey who are familiar with childcare centers and the number of children they can handle at once. For these reasons, QF 4, 8 and 27 differ by gender in the correlation between Q and F.

Distribution of Q4 and F4 by gender (left bar '0'=male; right bar '1'=female):

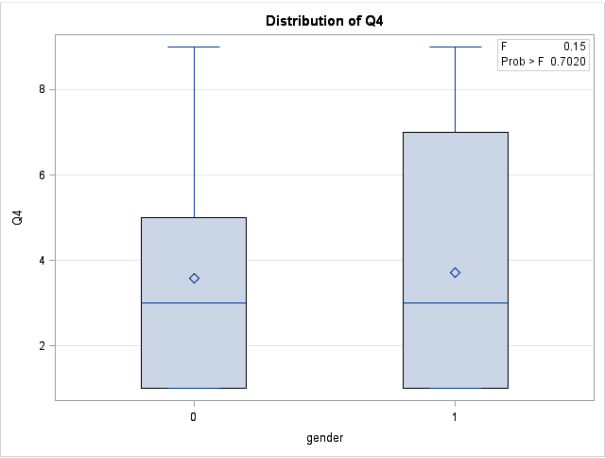


Figure 3: Distribution of Q4 by gender

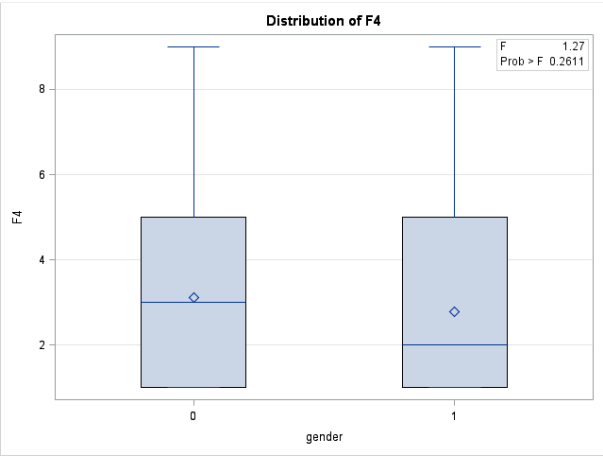


Figure 4: Distribution of F4 by gender

Distribution of Q8 and F8 by gender (0=male, 1=female):

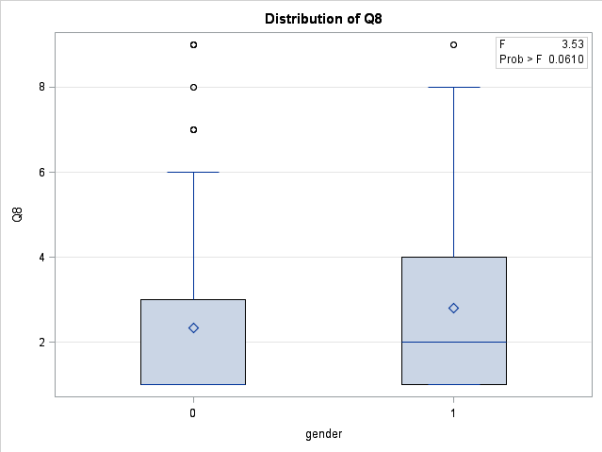


Figure 5: Distribution of Q8 by gender

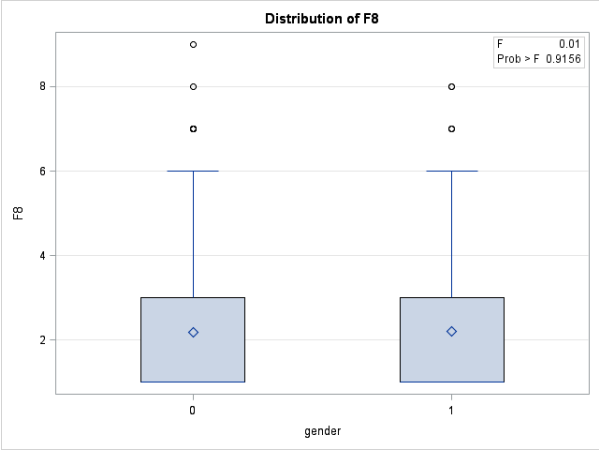


Figure 6: Distribution of F8 by gender

Distribution of Q27 and F27 by gender (0=male, 1=female):

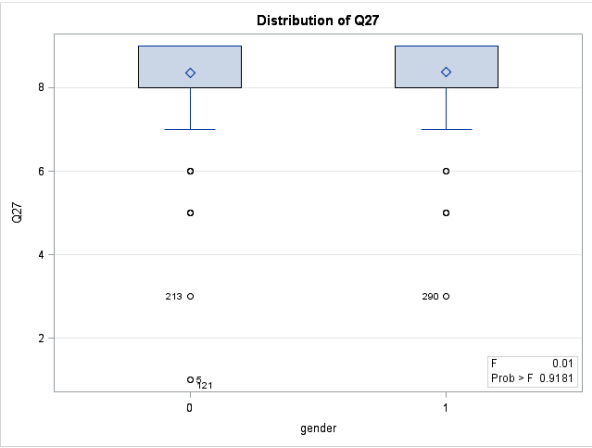


Figure 7: Distribution of Q27 by gender

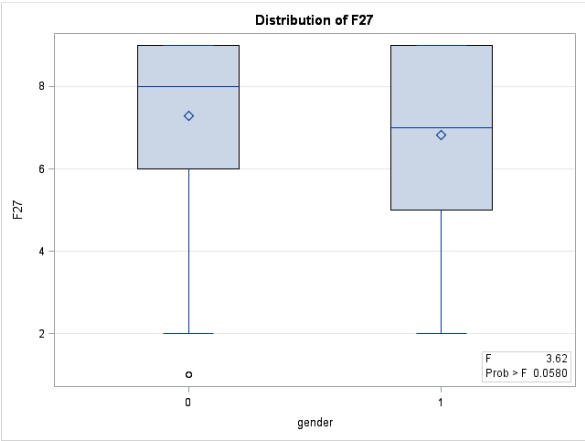


Figure 8: Distribution of F27 by gender

Just as was done in the overall analysis to find the best overall policies, the data was split by gender and each gender's best policies (by median) were examined.

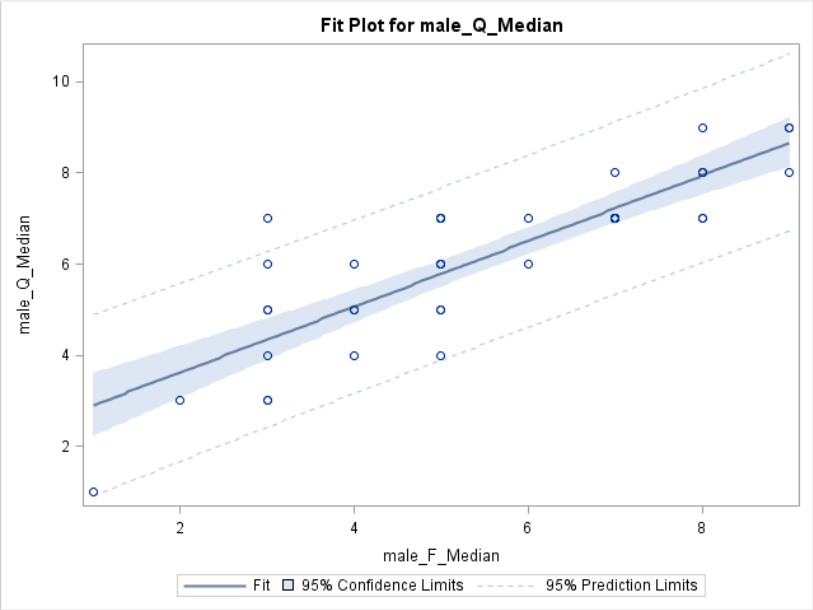


Figure 9: Correlation between median Q and median F for males

The best policies according to males are the points in the upper-right of the correlation plot of median Q and median F above. They had to have a median Q score above 7 and a median F score above 5. These policies were: QF12, QF13, QF20, QF27, QF29, QF33, QF34 and QF35.

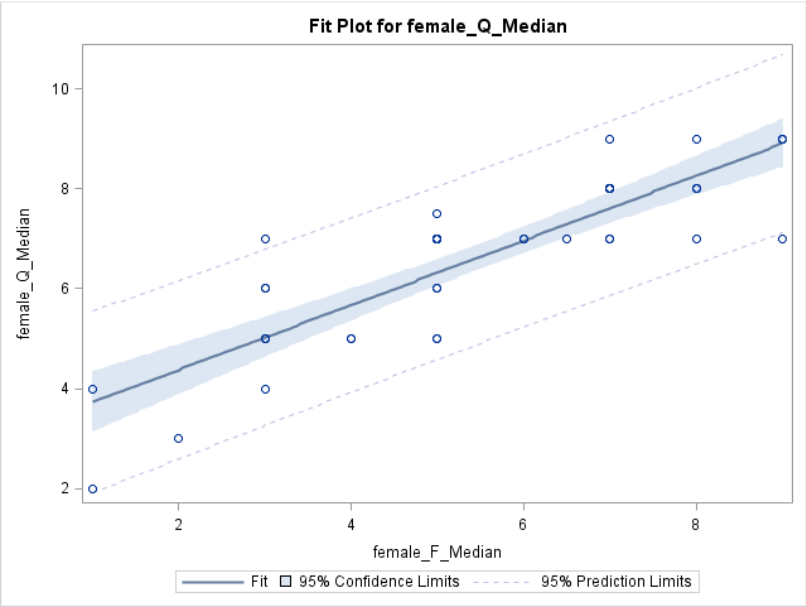


Figure 10: Correlation between median Q and median F for females

The upper-right corner of the correlation plot between female median Q and median F contains the policies that females thought were best. These policies had to have a median Q value of above 7 and a median F value of above 5. These policies were: QF12, QF13, QF15, QF16, QF18, QF20, QF27, QF29, QF33, QF34, QF35, QF36, QF37 and QF39. Evidently, the list of best policies for females includes many more entries than the list of best policies for males.

The overall list of best policies consists of QF12, QF13, QF15, QF16, QF20, QF27, QF29, QF33, QF34 and QF35. This is exactly the same as the list of best policies for males, which makes sense given that there were three times as many males as females among our respondents so the results are biased towards males. Policies which females also consider 'best policies' but which are absent from this list are QF18, QF36, QF37 and QF39. Interestingly, none of these policies had significant differences in the way males and females responded to them, either in terms of quality or feasibility (from the first and second test results). Neither were the differences in Q and F ratings significant for these policies (from the third and fourth test results). From this, we deduce that females rated these four policies better than males did, but not significantly so in either quality or feasibility. These policies may be on the list of best policies for women, but they are not overly favored. Instead, more attention should be paid to the best policies which both male and female administrators condone. Even though QF12, QF13 are gendered in the sense that males rated them as more feasible than females, these policies still hold a place in the list of best policies according to females. None of the other best policies were gendered. This means that all the overall best policies have the backing of both male and female administrators. This is a positive sign for administrators, because there is a clear consensus from

both genders about what the best policies are in order to for women to achieve a balance between work and family.

Since it is clear that both genders share the same ideas on what the best policies are, no tables are provided that sort the best policies according to gender. Instead, the following tables will list policies in terms of the magnitude of gender difference seen in the responses to each policy. The table provided immediately below lists all the policies, ordered from ones with the most gendered quality responses to the least gendered quality responses. In order to generate this table, tests were conducted on the null hypothesis that the Q responses of males and females were not significantly different. The p-values were generated for each policy, and this table sorts the p-values from largest (i.e. most significant gender difference) to smallest (least significant gender difference).

Table 5: Ranking of quality of policies from most gendered to least gendered

Rank	Label	Policy	Q's p-value
1	**Q26**	Support requests for shared tenure lines (between partners).	0.0006
2	**Q40**	Endorse supplements to offset PI's productivity loss due to family-related absences.	0.0006
3	**Q10**	For promotion, increase value of teaching and service plus administration.	0.0007
4	**Q11**	Conduct (and disseminate) institutional research on gender equity.	0.0009
5	**Q41**	Support conference and meeting grant supplements to cover cost of PI's dependent care travel (children's and childcare workers' expenses allowable).	0.0015
6	**Q44**	Endorse supplemental funding for hiring postdocs to maintain momentum during family leaves.	0.0016
7	**Q43**	Provide support to help faculty engaging in caregiving duties to catch up mid-career.	0.031
8	**Q34**	Train department chairs on helping faculty manage work-life issues.	0.0367
9	**Q8**	Set gender quotas (minimum thresholds) for promotion to	0.061

		higher levels of rank (e.g., full professor).	
10	**Q29**	Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children.	0.0631
11	**Q42**	Support grants for retooling after maternity leave.	0.0788
12	**Q21**	Stop the tenure clock for raising children for up to 1 year per child: For fathers.	0.0865
13	**Q37**	Support no-cost extensions for caregiving on grants and fellowships.	0.0874
14	**Q33**	Provide equal opportunities for women and men to lead committees and research groups.	0.0975
15	**Q3**	Set gender goals for candidate pools.	0.1016
16	**Q24**	Allow option of changing from full-time to part-time tenure-track: Medium Term (2-5 years).	0.1098
17	**Q25**	Allow option of changing from full-time to part-time tenure-track: Permanent.	0.1333
18	**Q31**	Use technology to allow women and men with children to work and attend meetings from home.	0.1404
19	**Q2**	Reward departments that hire women.	0.1713
20	**Q13**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 semester.	0.174
21	**Q22**	Change timing of tenure assessment to not coincide with peak fertility and childrearing demands.	0.1842
22	**Q32**	Provide an academic role for women who have left professional positions to have children.	0.1931
23	**Q5**	Explore/endorse couples-hiring.	0.203
24	**Q36**	Convene gender-equity workshops focusing on issues such as workplace climate and resource allocation.	0.2048
25	**Q20**	Stop the tenure clock for raising children for up to 1 year per child: For mothers.	0.2115
26	**Q9**	Set gender quotas for important committees and administrative posts.	0.2385
27	**Q1**	Have a woman chair search committees whenever possible.	0.2616
28	**Q19**	Provide teaching relief for new tenure-track parents: 1 year.	0.3004
29	**Q6**	Guarantee academic employment for professional spouses/partners.	0.3036
30	**Q30**	Offer family housing subsidies in regions where young families are priced out of the market.	0.3333
31	**Q38**	Support part-time fellowships and grants.	0.3457
32	**Q16**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 semester.	0.3731
33	**Q15**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 6 weeks.	0.4148
34	**Q35**	Develop mentoring programs to reduce isolation of female	0.4488

		faculty.	
35	**Q23**	Allow option of changing from full-time to part-time tenure-track: Short Term (up to 1 year).	0.4929
36	**Q14**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 year.	0.587
37	**Q17**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 year.	0.6179
38	**Q18**	Provide teaching relief for new tenure-track parents: 1 semester.	0.6407
39	**Q39**	Support the deferred start of fellowships to allow for caregiving.	0.6671
40	**Q12**	Provide fully-paid leave for giving birth (tenure-track women only): For 6 weeks.	0.6964
41	**Q4**	Set quotas for new lines: women-only lines until critical mass reached.	0.702
42	**Q28**	Provide subsidies for on-campus or off-campus childcare services.	0.8291
43	**Q7**	Instruct search committees to ignore family-related gaps in CVs.	0.8444
44	**Q27**	Provide on-campus childcare centers.	0.9181

The following table is similar to the one above, and constructed in the same manner, except this time it orders the policies by feasibility in order of the most gendered responses to the least gendered ones.

Table 6: Ranking of feasibility of policies from most gendered to least gendered

Rank	Label	Policy	F's p-value
1	**F1**	Have a woman chair search committees whenever possible.	0.0004
2	**F26**	Support requests for shared tenure lines (between partners).	0.0005
3	**F7**	Instruct search committees to ignore family-related gaps in CVs.	0.0027
4	**F21**	Stop the tenure clock for raising children for up to 1 year per child: For fathers.	0.0035
5	**F32**	Provide an academic role for women who have left professional positions to have children.	0.0095
6	**F14**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 year.	0.0123
7	**F13**	Provide fully-paid leave for giving birth (tenure-track women	0.0232

		only): For 1 semester.	
8	**F12**	Provide fully-paid leave for giving birth (tenure-track women only): For 6 weeks.	0.0295
9	**F17**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 year.	0.0436
10	**F27**	Provide on-campus childcare centers.	0.058
11	**F5**	Explore/endorse couples-hiring.	0.0623
12	**F6**	Guarantee academic employment for professional spouses/partners.	0.1198
13	**F20**	Stop the tenure clock for raising children for up to 1 year per child: For mothers.	0.1306
14	**F44**	Endorse supplemental funding for hiring postdocs to maintain momentum during family leaves.	0.153
15	**F11**	Conduct (and disseminate) institutional research on gender equity.	0.166
16	**F41**	Support conference and meeting grant supplements to cover cost of PI's dependent care travel (children's and childcare workers' expenses allowable).	0.1691
17	**F40**	Endorse supplements to offset PI's productivity loss due to family-related absences.	0.1776
18	**F38**	Support part-time fellowships and grants.	0.1933
19	**F25**	Allow option of changing from full-time to part-time tenure-track: Permanent.	0.201
20	**F36**	Convene gender-equity workshops focusing on issues such as workplace climate and resource allocation.	0.2129
21	**F39**	Support the deferred start of fellowships to allow for caregiving.	0.217
22	**F22**	Change timing of tenure assessment to not coincide with peak fertility and childrearing demands.	0.2578
23	**F4**	Set quotas for new lines: women-only lines until critical mass reached.	0.2611
24	**F37**	Support no-cost extensions for caregiving on grants and fellowships.	0.2631
25	**F35**	Develop mentoring programs to reduce isolation of female faculty.	0.3212
26	**F31**	Use technology to allow women and men with children to work and attend meetings from home.	0.3308
27	**F30**	Offer family housing subsidies in regions where young families are priced out of the market.	0.359
28	**F16**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 semester.	0.4214
29	**F42**	Support grants for retooling after maternity leave.	0.4401
30	**F24**	Allow option of changing from full-time to part-time tenure-track: Medium Term (2-5 years).	0.4456

31	**F19**	Provide teaching relief for new tenure-track parents: 1 year.	0.467
32	**F9**	Set gender quotas for important committees and administrative posts.	0.4867
33	**F23**	Allow option of changing from full-time to part-time tenure-track: Short Term (up to 1 year).	0.5168
34	**F29**	Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children.	0.5493
35	**F34**	Train department chairs on helping faculty manage work-life issues.	0.5974
36	**F2**	Reward departments that hire women.	0.6015
37	**F15**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 6 weeks.	0.7194
38	**F33**	Provide equal opportunities for women and men to lead committees and research groups.	0.7471
39	**F10**	For promotion, increase value of teaching and service plus administration.	0.7786
40	**F28**	Provide subsidies for on-campus or off-campus childcare services.	0.7894
41	**F43**	Provide support to help faculty engaging in caregiving duties to catch up mid-career.	0.8002
42	**F18**	Provide teaching relief for new tenure-track parents: 1 semester.	0.8039
43	**F8**	Set gender quotas (minimum thresholds) for promotion to higher levels of rank (e.g., full professor).	0.9156
44	**F3**	Set gender goals for candidate pools.	0.9336

In order to find the most gendered policies overall by both quality and feasibility scores, we looked at the sum of p-values for both Q and F. This is a simplified way to find the most gendered scores, without looking at whether it was the quality or feasibility p-value that more heavily influenced the sum. The policies which were the most gendered would have the lowest Q and F p-values independently, and so when the p-values are summed, the policies with the lowest overall sum are the ones that are the most gendered. The table below lists the policies in order from the most to the least gendered. Administrators may want to focus on implementing the least gendered policies at the bottom of the list, keeping in mind the list of best overall policies outlined in the overall analysis discussion earlier. Alternatively, they could look at the most

gendered policies and determine whether addressing the underlying causes for gender differences in the responses (such as workplace climate or the comparative value of research, teaching and service) for these policies is the best way forward to help women in STEM departments.

Table 7: Overall ranking of policies from most gendered to least gendered

Rank	Label	Policy	Sum of Q and F's p-value
1	**QF26**	Support requests for shared tenure lines (between partners).	0.0011
2	**QF21**	Stop the tenure clock for raising children for up to 1 year per child: For fathers.	0.09
3	**QF44**	Endorse supplemental funding for hiring postdocs to maintain momentum during family leaves.	0.1546
4	**QF11**	Conduct (and disseminate) institutional research on gender equity.	0.1669
5	**QF41**	Support conference and meeting grant supplements to cover cost of PI's dependent care travel (children's and childcare workers' expenses allowable).	0.1706
6	**QF40**	Endorse supplements to offset PI's productivity loss due to family-related absences.	0.1782
7	**QF13**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 semester.	0.1972
8	**QF32**	Provide an academic role for women who have left professional positions to have children.	0.2026
9	**QF1**	Have a woman chair search committees whenever possible.	0.262
10	**QF5**	Explore/endorse couples-hiring.	0.2653
11	**QF25**	Allow option of changing from full-time to part-time tenure-track: Permanent.	0.3343
12	**QF20**	Stop the tenure clock for raising children for up to 1 year per child: For mothers.	0.3421
13	**QF37**	Support no-cost extensions for caregiving on grants and fellowships.	0.3505
14	**QF36**	Convene gender-equity workshops focusing on issues such as workplace climate and resource allocation.	0.4177
15	**QF6**	Guarantee academic employment for professional spouses/partners.	0.4234
16	**QF22**	Change timing of tenure assessment to not coincide with peak fertility and childrearing demands.	0.442
17	**QF31**	Use technology to allow women and men with children to work and attend meetings from home.	0.4712
18	**QF42**	Support grants for retooling after maternity leave.	0.5189

19	**QF38**	Support part-time fellowships and grants.	0.539
20	**QF24**	Allow option of changing from full-time to part-time tenure-track: Medium Term (2-5 years).	0.5554
21	**QF14**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 year.	0.5993
22	**QF29**	Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children.	0.6124
23	**QF34**	Train department chairs on helping faculty manage work-life issues.	0.6341
24	**QF17**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 year.	0.6615
25	**QF30**	Offer family housing subsidies in regions where young families are priced out of the market.	0.6923
26	**QF9**	Set gender quotas for important committees and administrative posts.	0.7252
27	**QF12**	Provide fully-paid leave for giving birth (tenure-track women only): For 6 weeks.	0.7259
28	**QF19**	Provide teaching relief for new tenure-track parents: 1 year.	0.7674
29	**QF35**	Develop mentoring programs to reduce isolation of female faculty.	0.77
30	**QF2**	Reward departments that hire women.	0.7728
31	**QF10**	For promotion, increase value of teaching and service plus administration.	0.7793
32	**QF16**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 semester.	0.7945
33	**QF43**	Provide support to help faculty engaging in caregiving duties to catch up mid-career.	0.8312
34	**QF33**	Provide equal opportunities for women and men to lead committees and research groups.	0.8446
35	**QF7**	Instruct search committees to ignore family-related gaps in CVs.	0.8471
36	**QF39**	Support the deferred start of fellowships to allow for caregiving.	0.8841
37	**QF4**	Set quotas for new lines: women-only lines until critical mass reached.	0.9631
38	**QF27**	Provide on-campus childcare centers.	0.9761
39	**QF8**	Set gender quotas (minimum thresholds) for promotion to higher levels of rank (e.g., full professor).	0.9766
40	**QF23**	Allow option of changing from full-time to part-time tenure-track: Short Term (up to 1 year).	1.0097
41	**QF3**	Set gender goals for candidate pools.	1.0352
42	**QF15**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 6 weeks.	1.1342

43	**QF18**	Provide teaching relief for new tenure-track parents: 1 semester.	1.4446
44	**QF28**	Provide subsidies for on-campus or off-campus childcare services.	1.6185

Analysis by Title

In the same way that the analysis was done by gender, the responses were broken down by title – provost, dean, associate dean and chair – and similarities and differences in responses to each policy's quality and feasibility were examined. In our sample, we had 17 provosts, 66 deans, 60 associate deans and 191 department chairs. This roughly corresponds to the number of people we emailed in each group. For this analysis, we assumed that people in each group answered in a manner typical of their title.

As was done in the first test for gender differences, the first test by title was to test the null hypothesis that there were no differences in Q ratings across the four titles, at a 95% significance level. The policies which had a significantly different Q rating across the titles were Q10, Q11, Q29 and Q34.

Q10: For promotion, increase value of teaching and service plus administration.

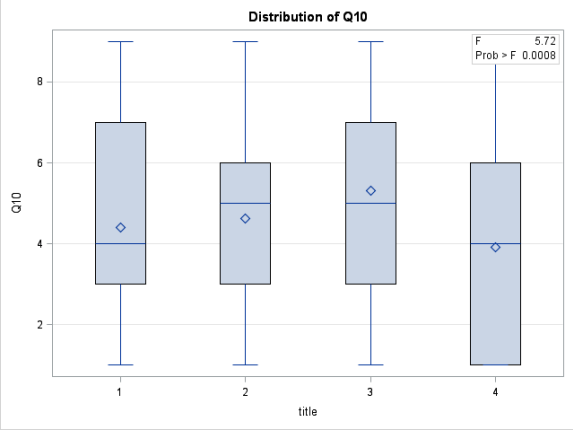


Figure 11: Distribution of Q10 by gender

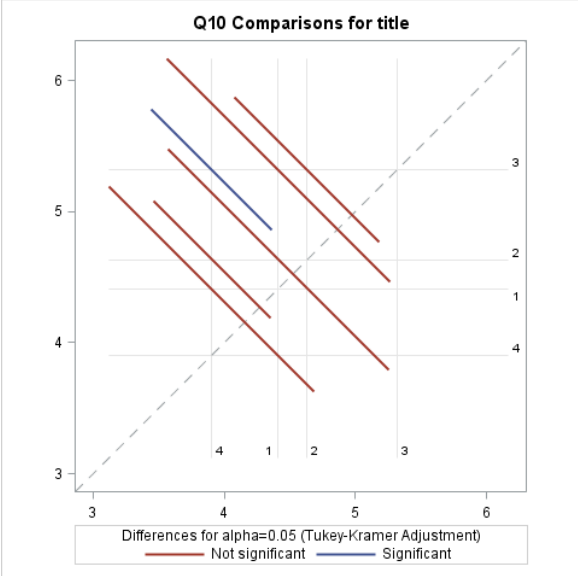


Figure 12: Tukey-Kramer comparison plot for Q10 by gender

In these plots, the bars from left to right labeled 1, 2, 3 and 4 represent provosts, deans, associate deans and department chairs respectively. The Tukey-Kramer comparison plot tells us that the responses of associate deans are significantly different from that of department chairs, and the box plot reflects this by showing that department chairs ranked this policy much lower in quality than associate deans. Going down the administrative ladder from provosts to deans to associate deans, the mean Q score increased, but plunged at department chairs. The low quality scores given by department chairs could be due to the fact that at major research universities, departments rely on research grants to fund their projects. Placing more focus on teaching and administration would tax their researchers by splitting their attention between teaching and conducting research to continue funded projects. As for why the quality score decreased as administrative level increased from associate dean to provost, one reason could be that higher-level administrators have greater purview and insight into how department-level changes in focus can have an impact on university-level missions. The universities we surveyed were research-focused universities, and increasing the value of teaching and service at the department-level could compromise the main research mission of these universities.

Q11: Conduct (and disseminate) institutional research on gender equity.

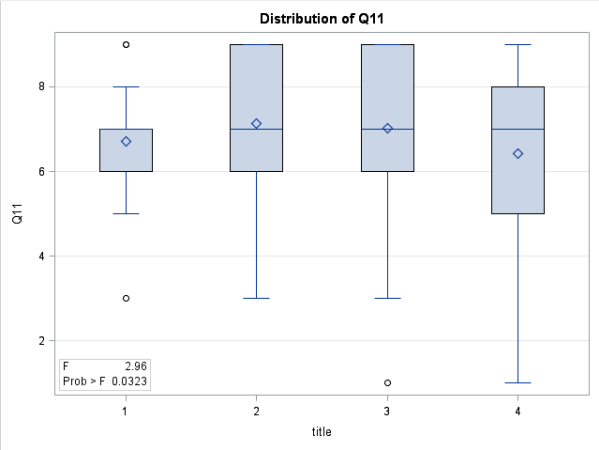


Figure 13: Distribution of Q11 by title

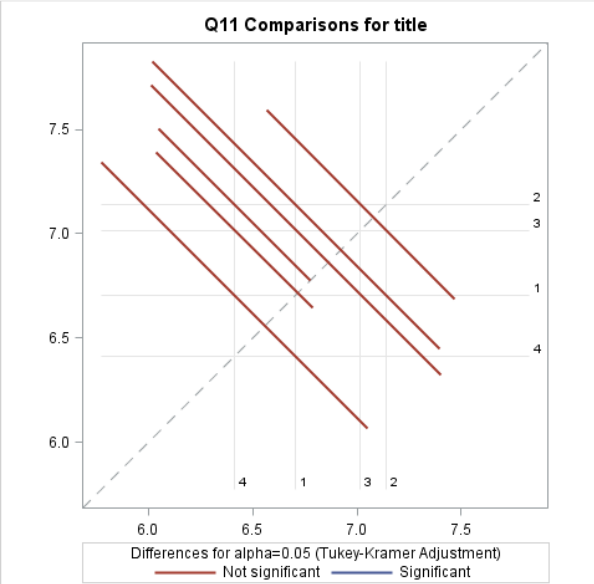


Figure 14: Tukey-Kramer comparison plot for Q11 by title

Q29: Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children.

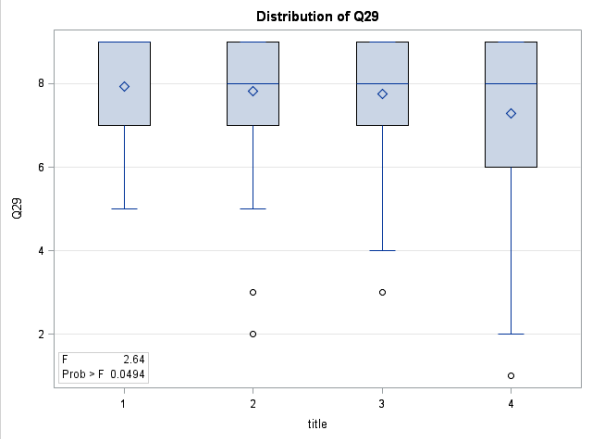


Figure 15: Distribution of Q29 by title

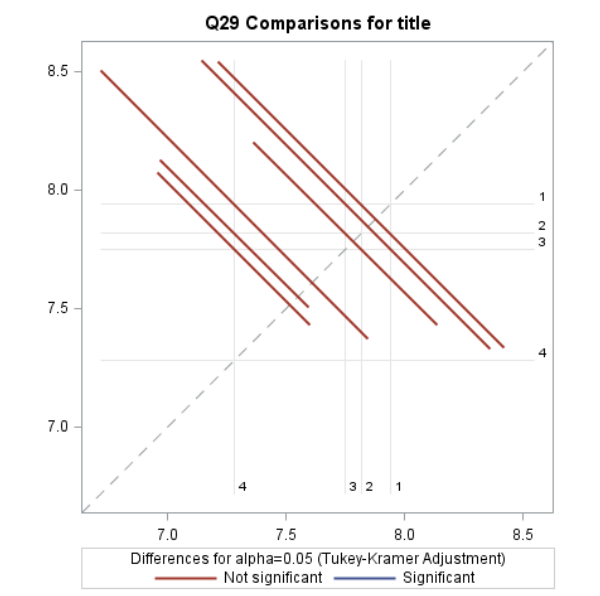


Figure 16: Tukey-Kramer comparison plot for Q29 by title

Q34: Train department chairs on helping faculty manage work-life issues.

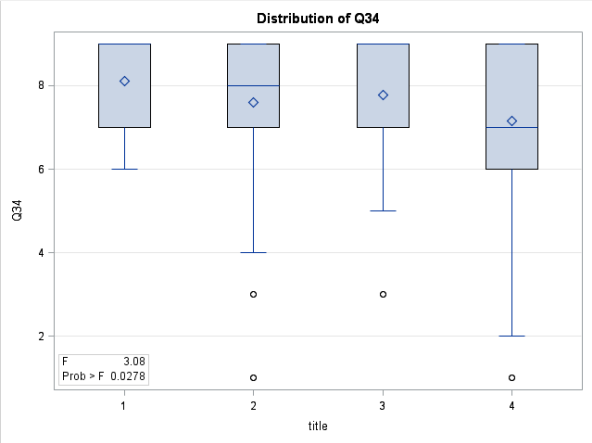


Figure 17: Distribution of Q34 by title

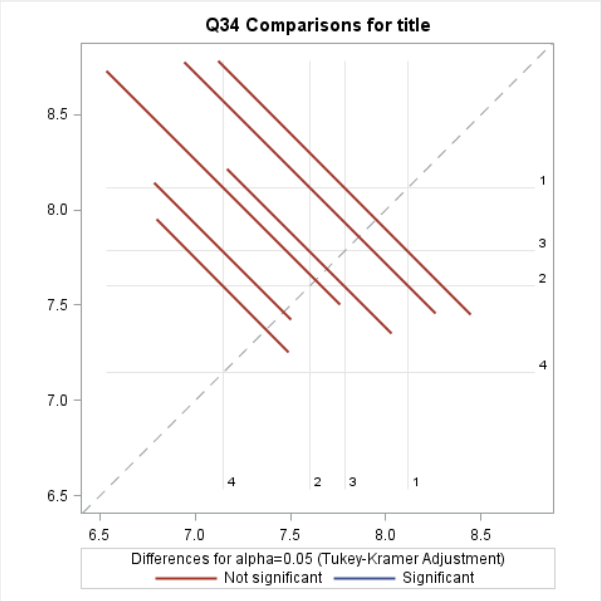


Figure 18: Tukey-Kramer comparison plot for Q34 by title

The Tukey-Kramer comparison plots for Q11, Q29 and Q34 do not show which groups are significantly different, even though their F-tests indicate that at least one title has responses that are significantly different from the others. The box plots for all three show that the mean value is about the same across all the titles, but department chairs have a larger spread of responses as compared to the other titles. This might be an effect of the unequal number of respondents in each group – since there were more department chairs sampled, there are more likely to be people at responding at either extreme of the 1-9 response scale. This would make it seem like department chairs have significantly different responses from the others when in fact the majority of the respondents respond in the same manner as the other titles. Thus the result that Q11, Q29 and Q34 have at least one group with significantly different responses is due to the sample size in each group, not because of a true difference in the responses.

The second test by title was to test the null hypothesis that the F ratings were not significantly different between the titles. This time the policies that had significantly different responses between the titles were: F4, F11, F14, F21 and F29.

F4: Set quotas for new lines: women-only lines until critical mass reached.

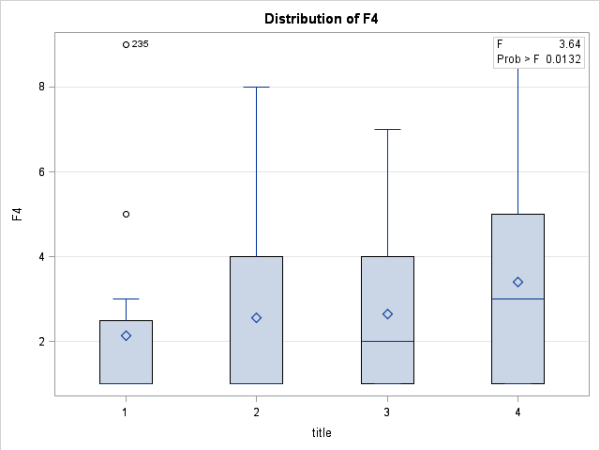


Figure 19: Distribution of F4 by title

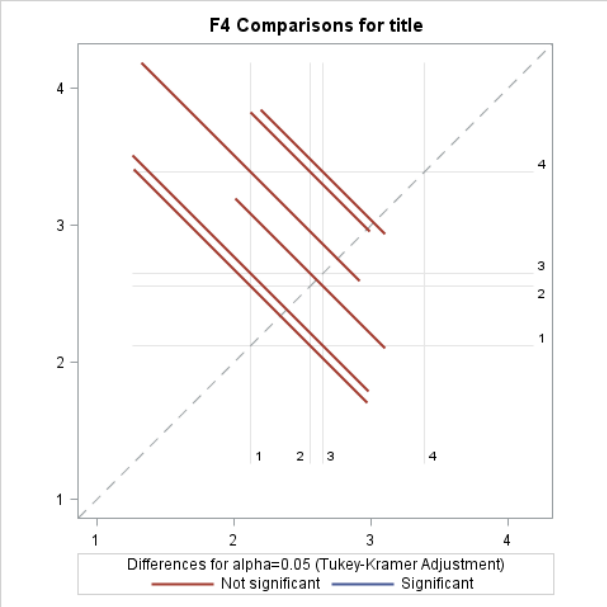


Figure 20: Tukey-Kramer comparison plot for F4 by title

F14: Provide fully-paid leave for giving birth (tenure-track women only): For 1 year.

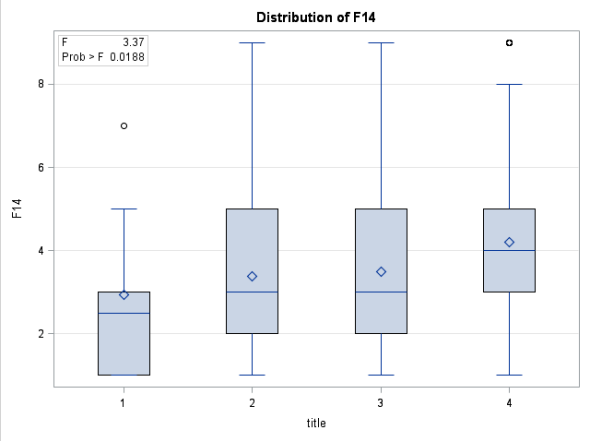


Figure 21: Distribution of F14 by title

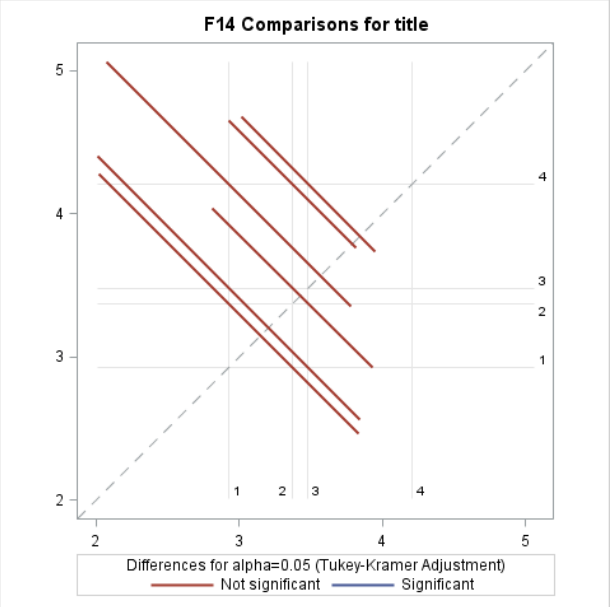


Figure 22: Tukey-Kramer comparison plot of F14 by title

F4 and F14, just like Q11, Q29 and Q34, have statistically significant F-test results but the Tukey-Kramer comparison plot does not show that the titles differ significantly in their

responses. Visually, the box plots of F4 and F14 do not appear to have significantly different spreads between the titles, but the difference may be statistically significant enough to reject the F-test null hypothesis. Still, even though the differences between the pairs of groups do not appear to be significant, there is a clear trend that for both F4 and F14. The mean feasibility score increases with decreasing administrative power from provosts to deans to associate deans to department chairs. For F4, a number of provosts and deans mentioned that the policy of setting quotas for new lines or having women-only lines may not be in accordance with the law. Possibly, awareness of legal ramifications is heightened when one is higher up on the administrative ladder. This would explain the decreasing feasibility of F4 with the increasing title rank. For F14, it is not immediately clear why higher administration would be more opposed to giving tenure-track women a year of leave than department chairs would; after all, if women take a break for a year, departments' productivity would be affected. Perhaps the existing low number of women in STEM departments makes department chairs feel that giving a year of maternity leave would not affect the overall department productivity to a large extent, or perhaps department chairs are more in touch with female STEM researchers and are aware of the need to award more maternity leave for childbirth and childcare. In any case, the trend for higher administration to be more opposed to these policies is concerning because these policies are thought to be feasible by department chairs but if higher administrators are not of the same mind, it will be more difficult to implement these policies.

F21: Stop the tenure clock for raising children for up to 1 year per child: For fathers.

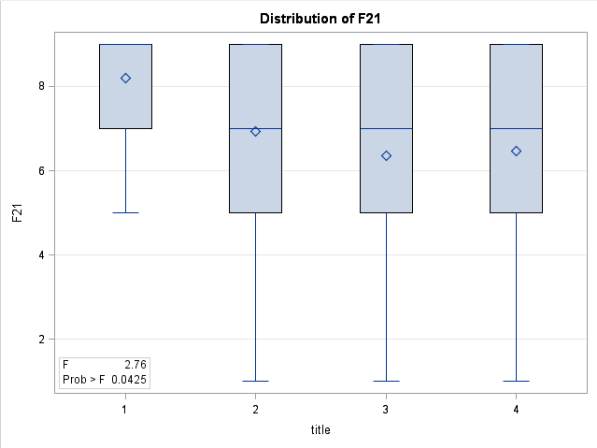


Figure 23: Distribution of F21 by title

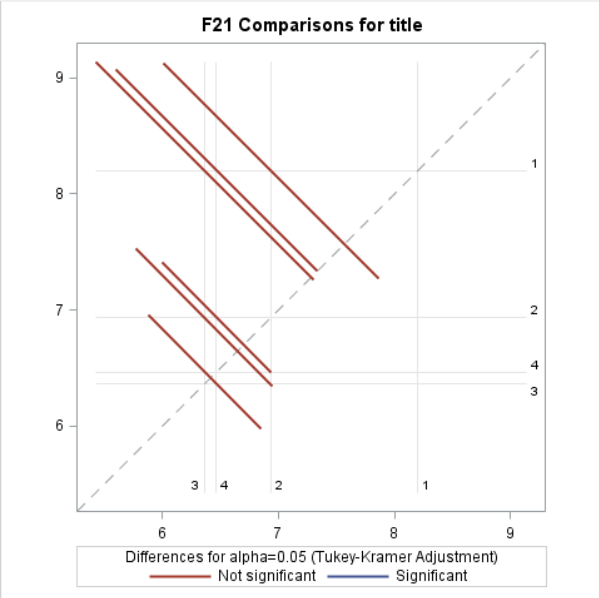


Figure 24: Tukey-Kramer comparison plot of F21 by title

F29: Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children.

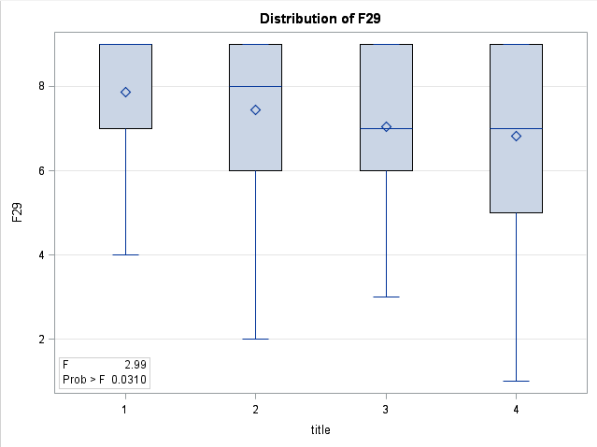


Figure 25: Distribution of F29 by title

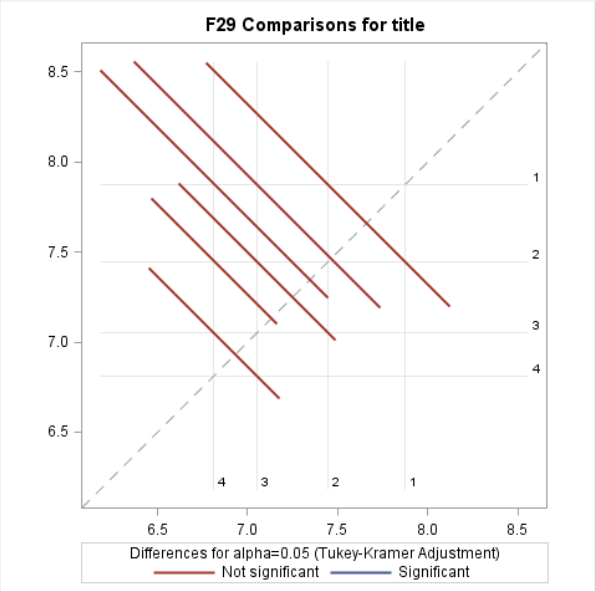


Figure 26: Tukey-Kramer comparison plot of F29 by title

Just like F4 and F14, F21 and F29 also have Tukey-Kramer plots that do not show significant differences between the groups. The differences in distribution might account for the

F-test showing a significant difference between the groups instead. Still, while F4 and F14 showed decreasing feasibility rankings with increasing administrative power, F21 and F29 instead show increasing feasibility rankings with increasing administrative power. Both policies are related to granting males more time off from research activities. Even F29, which encompasses both genders, is geared more towards men because women tend to take time off for family-related issues even if it comes with a penalty while men typically do not. Not imposing a penalty would make it easier for men to take time off for their family without consequences for their standing in the department. These policies aim to make it clear that parenting responsibilities can be shouldered by either parent. This would look good to higher administration, because these are clear policies that universities can use to show their commitment to equality. Department chairs, however, may not be as pleased by these policies because presently STEM fields are dominated by men, and the possibility of having men take a large amount of time off from research would significantly reduce the productivity of the lab. Administrators closer to the actual lab work would probably be more inclined to the views of department chairs, as they would know more about how these policies would affect the day-to-day work within the departments. University leaders higher up the administrative ladder would most likely be more inclined to hold views similar to provosts, that these policies would enhance the image of the university in terms of gender equality. This would explain why associate deans and deans follow the trend to increasingly find F21 and F29 more favorable as their ranking on the administrative ladder increases.

F11: Conduct (and disseminate) institutional research on gender equity.

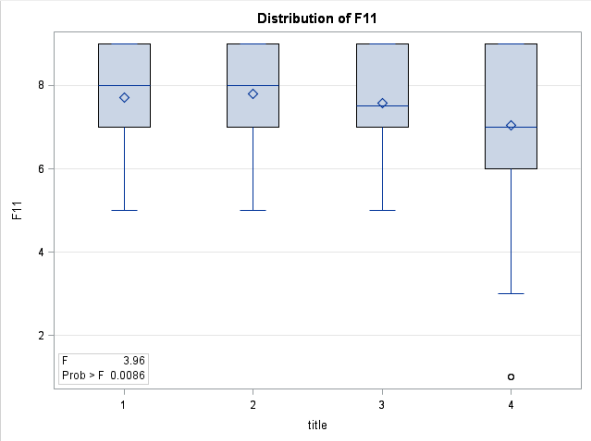


Figure 27: Distribution of F11 by title

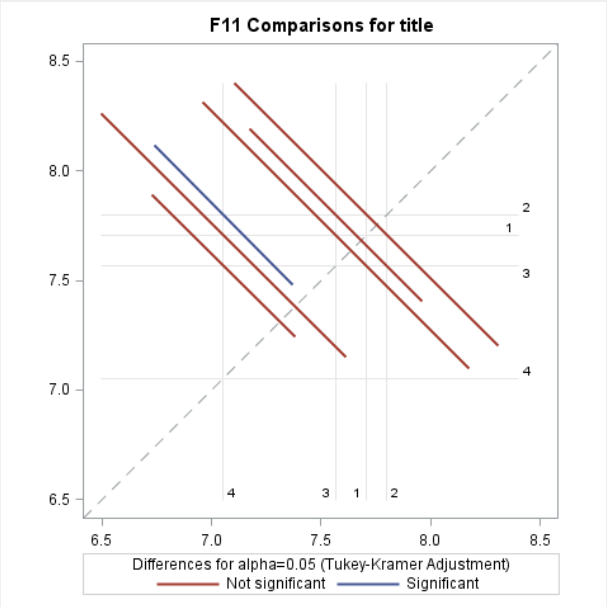


Figure 28: Tukey-Kramer comparison plot for F11 by title

For F11, the Tukey-Kramer comparison plot shows that department chairs and deans had significantly different responses, with department chairs ranking this policy as having lower feasibility than deans. The box plot shows that deans and provosts gave similar feasibility rankings, but perhaps the Tukey-Kramer test did not pinpoint provosts and department chairs as having significantly different results because of the small sample size of provosts. Possibly, higher administration would view conducting disseminating institutional research on gender equity as a tangible method to bring about discussions of gender equity. However, department chairs may feel that such research highlights the problem but does not give practical solutions to the problem of gender disparity within the department, so departments would spend time responding to such research but would not obtain any practical benefit from it. Thus F11 might be popular with higher administration but is seen as impractical at the department level.

Overall, policies QF11 and QF29 were significantly different in terms of both quality and feasibility across the four title groups. However, Q11 and Q29 were significantly different based

on sample size and not due to the titles, so in practical terms there were no policies that were significantly different in their quality and feasibility rankings because of title differences.

These results are heartening because they tell us that on the whole, university administrators at different levels agree on what they believe is a good policy, either in terms of quality or in terms of feasibility, even if they don't agree on both ratings at the same time. Since the policies are not clearly divided by title, a list of policies in order of magnitude of difference between the groups is not provided.

Analysis by University Type

Of the 96 universities that were emailed, at least one person from 93 of the universities responded to the survey. Of these 93 universities, 62 were public and 31 were private, making a 2:1 ratio. In the survey, there were 248 respondents from public universities and 86 respondents from private universities, which is an approximate 3:1 ratio. This means that more administrators from public universities responded to the survey than administrators from private universities. In order to make further analysis useful, the Q and F responses were broken down by university type, assuming that the respondents answered in a manner typical of their university type.

As was done in the gender and title analyses, the first null hypothesis tested was that public and private university respondents rate the quality of a policy similarly, at a 95% significance level. Policies which rejected the null hypothesis, i.e. policies for which public and private university respondents had significantly different quality responses, were Q5 and Q41.

QF5: Explore/endorse couples-hiring.

Q41: Support conference and meeting grant supplements to cover cost of PI's dependent care travel (children's and childcare workers' expenses allowable).

Note that in the following diagrams, 'univtype' refers to university type, where 0 refers to public universities (the bar on the left) and 1 refers to private universities (the bar on the right).

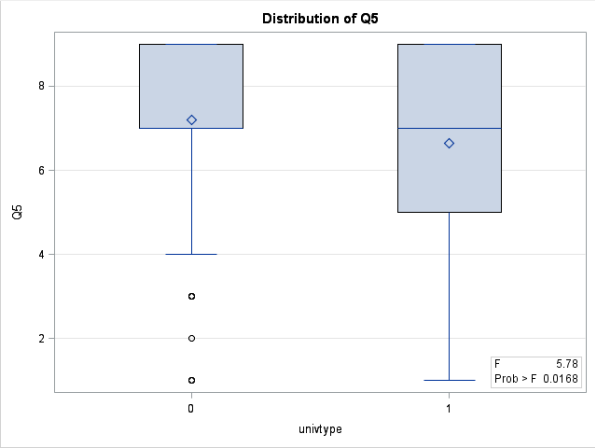


Figure 29: Distribution of Q5 by university type

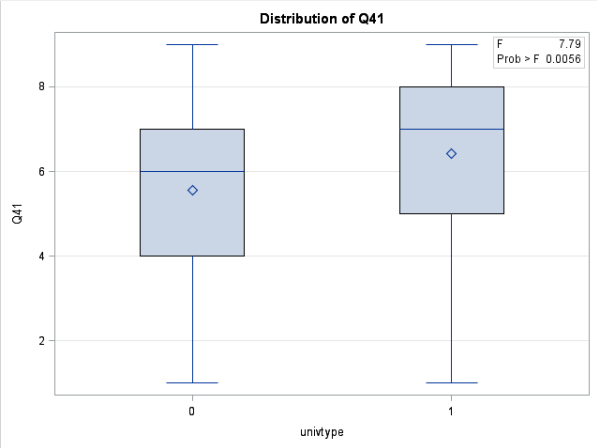


Figure 30: Distribution of Q41 by university type

QF5 and Q41 are both related to covering family under university policies. Interestingly, public university respondents rated the quality of QF5 higher and rated Q41 lower than private university respondents. A stereotypical notion of the competitiveness of private universities and public university's goal of saving money could put these responses in perspective. For QF5, when considering hiring couples, the risk of hiring one person out of the pair who is not up to a private university's standards could hurt the department's productivity and competitiveness more than hiring the other person helps, so this would not be considered a good quality policy for private universities. This would not be as much of a problem for public universities, which are on average not as competitive so hiring a couple in which one person is not stellar is not a problem as long as they are good overall. As for Q41, while private universities have access to grants and funds that can be expanded to cover dependent travel expenses, public universities that have to be frugal with their expenses would not consider covering a PI's dependents a good idea.

The second test was identical to the first except that it looked for significant differences in feasibility responses. Policies for which public and private respondents had significantly different feasibility responses were F4, F5, F9, F13, F20, F28, F30 and F41.

F4: Set quotas for new lines: women-only lines until critical mass reached.

F9: Set gender quotas for important committees and administrative posts.

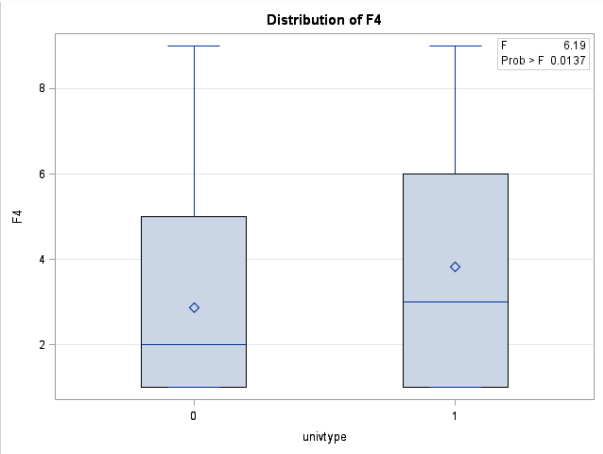


Figure 31: Distribution of F4 by university type

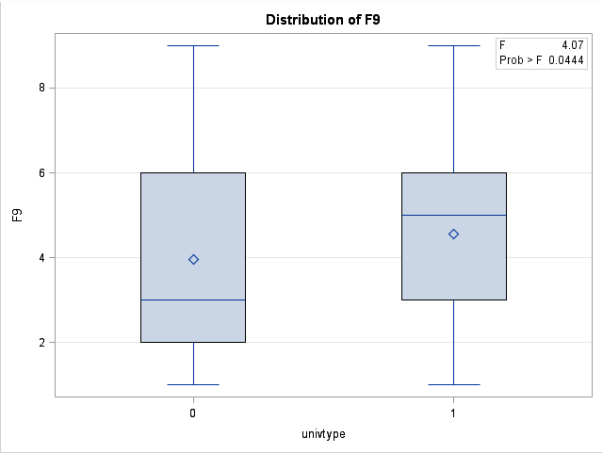


Figure 32: Distribution of F9 by university type

F4 and F9 are concerned with the preferential hiring and promotion of women. Public universities gave these policies lower feasibility ratings than private universities, with many respondents from public universities questioning the legality of these policies. Understandably, public universities would be more risk averse when it comes to legal issues, especially since they are publicly funded. Private universities have more freedom to implement risky policies as long as they justify these risky changes to the people who fund them. This would explain why these policies are considered more feasible by private university administrators than public ones.

F5: Explore/endorse couples-hiring.

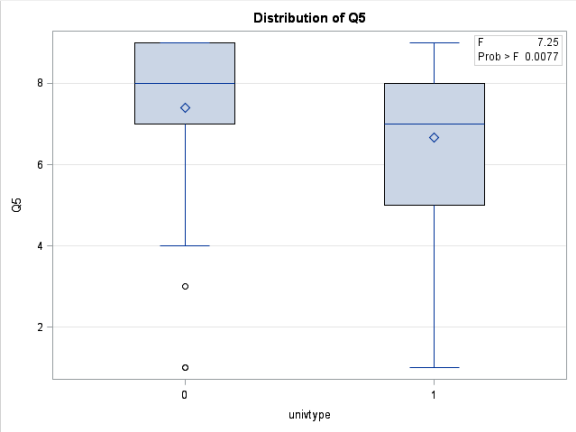


Figure 33: Distribution of F5 by university type

Public university respondents gave QF5 a higher feasibility score than private university respondents. In line with the reasoning for giving QF5 a higher quality score, private universities would see hiring a couple where one person is less qualified for the job as a less feasible tactic, given that their goal is to maintain their departments' competitive edge. Public universities may see it as a more feasible idea which gives the department(s) one highly qualified person, even if the other is not as well qualified.

F13: Provide fully-paid leave for giving birth (tenure-track women only): For 1 semester.

F20: Stop the tenure clock for raising children for up to 1 year per child: For mothers.

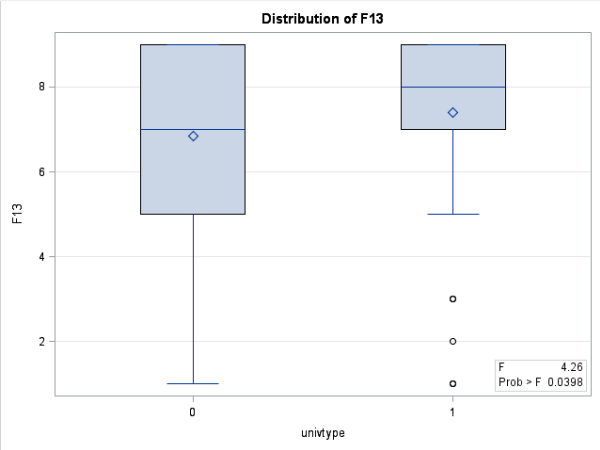


Figure 34: Distribution of F13 by university type

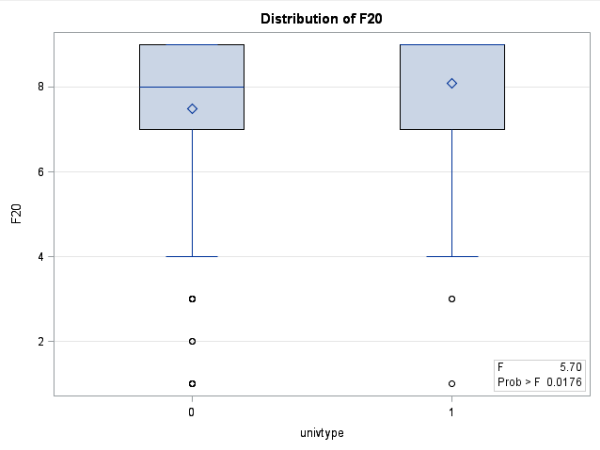


Figure 35: Distribution of F20 by university type

F13 and F20 have to do with giving women a year off from work, whether in terms of fully paid leave or just giving a break from the tenure track. For both F13 and F20, private universities are more in favor of the policy than public universities. However, the distribution plots for both policies show that while public university administrators clearly find providing paid leave for tenure-track women less feasible (F13), both public and private universities appear to find providing women with a year-long break from the tenure track equally feasible (F20). Perhaps the factor that caused the statistical difference is due to the outliers in the data for F20, in particular the outliers in the public university data. Those data points could have made the feasibility rating of public university respondents artificially low, causing the test to report a statistically significant difference in the data. Going back to F13, the difference is once again easily explained – public universities with limited funding would have a hard time paying all the women it hires for an entire year off, while private universities might not face this problem to the same degree. Thus private university administrators would find F13 more feasible than public university administrators.

F28: Provide subsidies for on-campus or off-campus childcare services.

F30: Offer family housing subsidies in regions where young families are priced out of the market.

F41: Support conference and meeting grant supplements to cover cost of PI's dependent care travel (children's and childcare workers' expenses allowable).

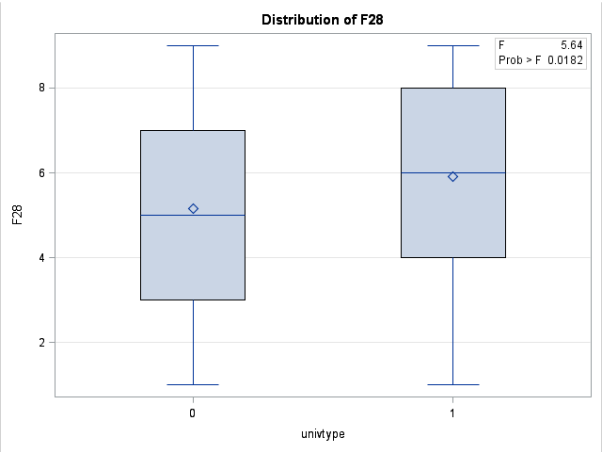


Figure 36: Distribution of F28 by university type

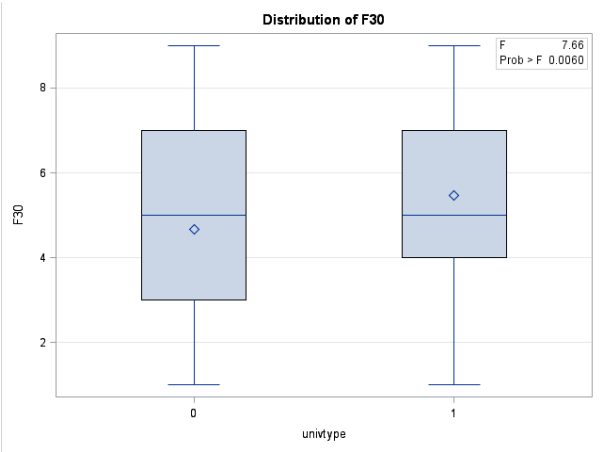


Figure 37: Distribution of F30 by university type

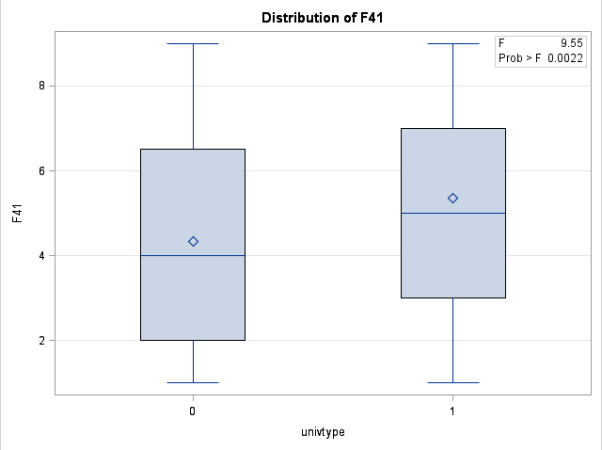


Figure 38: Distribution of F41 by university type

As for F28, F30 and F41, public university respondents gave all three policies lower feasibility scores than private university respondents. These policies rely heavily on having sufficient funding to implement them. While public university administrators might view them as

a good idea, practically speaking it would not be feasible to for them to fund childcare, housing subsidies or dependent care travel for all young families while on an already tight budget for research. This policy would be relatively more feasible for private universities which have more resources available and can spread out their funding.

From these two sets of tests, QF5 and QF41 differed between the two university types both in quality and feasibility ratings. Most likely, the benefit of having one good researcher outweighed the cost of a possible not-as-productive partner, so public university respondents gave QF5 a high quality and feasibility rating as compared to private university respondents. In the same fashion, the explanation that public universities have to be more budget conscious about their policies would lead them to reject sponsoring dependent care travel both in terms of quality and feasibility, particularly when it does not appear to directly enhance work-life balance for women.

The third test was to see if Q and F were correlated for public universities. The aim of this test was to identify any policy that did not have a significant correlation, because this would mean that the policy was not bad overall, but one factor particular to public universities was dragging its overall rating down. However, all Q and F ratings for public universities were correlated so there were no issues that made university administrators give vastly different ratings for any policy.

This test was repeated with the data from private university respondents. This time, QF27 was found to have significantly different ratings for Q and F.

QF27: Provide on-campus childcare centers.

QF27 had significantly higher mean quality ratings (8.39 out of 9) than feasibility ratings (7.36 out of 9). It is not immediately clear why this would be so only for private universities. However, the fact that QF27 shows disparity at the overall results level (see sub-chapter on overall analysis) indicates that public universities also have some disparity between the Q and F scores for QF27 even if it is not significant at the 5% level. The analysis by gender also showed the QF27 was rated as being of lower feasibility by females than by males. Thus the disparity between quality and feasibility of offering childcare centers is not an issue endemic to just private universities; it is found across the board. The reason for this is unclear; perhaps this policy is not as feasible as would be hoped for reasons unique to each university. Nonetheless, QF27 has very high Q and F ratings and is among one of the top 3 overall policies in terms of quality. Thus whatever the feasibility concerns are, if they can be addressed in the context of each university, this would be a policy that would be extremely helpful in helping women in STEM balance family and career.

As was done in the analysis by gender, the best policies for each university type were examined using the median quality and feasibility score of both university types as a yardstick.

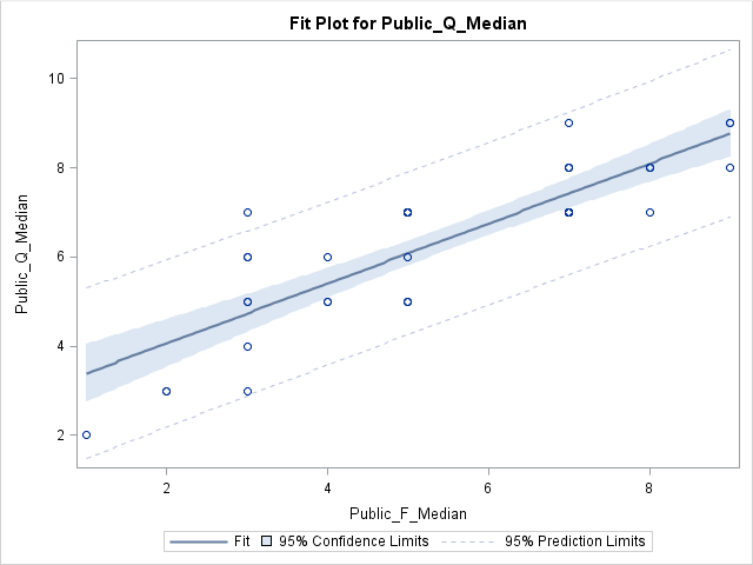


Figure 39: Correlation between median Q and median F for public universities

The best policies according to public university respondents are represented in the upper-right corner of the correlation plot above. These policies, which received ratings above 7 for quality and 5 for feasibility, were QF12, QF13, QF15, QF16, QF20, QF27, QF29, QF33, QF34, and QF35.

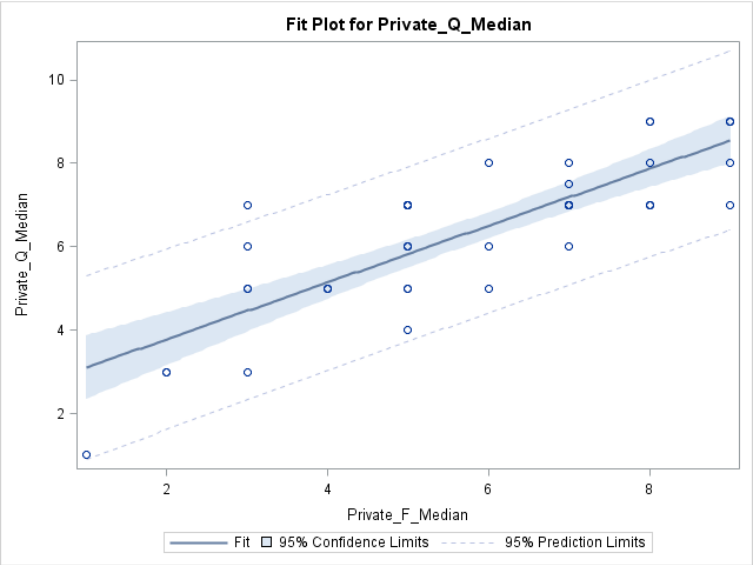


Figure 40: Correlation between median Q and median F for private universities

The best policies according to private university respondents are represented in the upper-right corner of the correlation plot above. These universities received ratings above the median quality score of 7 and the median feasibility score of 5.5. These policies are QF12, QF13, QF20, QF27, QF28, QF33, QF34, QF35, QF37 and QF39.

Comparing the best policies by public and private universities to the overall list of best policies, which consists of QF12, QF13, QF15, QF16, QF20, QF27, QF29, QF33, QF34 and QF35, the best policies according to public universities correspond exactly to this list. This is not surprising, because the majority of respondents were from public universities and so the overall list of best policies would be skewed towards their responses. Private university respondents, however, do not favor QF15, QF16 or QF29 to the extent that public universities do. Instead, they favor QF28, QF37 and QF39. Interestingly, of these 6 policies, only QF28 showed a significant difference in responses between public and private universities. This means that the other 5 policies are bordering on the 'best policies' list, but are not as favored by public university administrators.

QF15: Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 6 weeks.

QF16: Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 semester.

QF29: Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children.

These three policies which are not as much in favor in private universities as public universities have to do with leave for both genders for family matters. As was discussed in the

analysis by title, it is possible that administrators are more reluctant to grant men leave than women because there are currently many more men than women in their departments and having men take long breaks would hurt the productivity of the department. This would be more of a factor in private universities which tend to encourage a spirit of competitiveness, and a loss of productivity would be more detrimental to the reputation of the department than it would be in a public university. Thus it makes sense that these three policies would not be among the list of best policies generated by private university administrators, but would be more borderline.

QF28: Provide subsidies for on-campus or off-campus childcare services.

QF37: Support no-cost extensions for caregiving on grants and fellowships.

QF39: Support the deferred start of fellowships to allow for caregiving.

QF28, QF37 and QF39 are the three policies favored by private university administrators but not so much by public university administrators. The reason is straightforward for QF28 – it raises the money issue again, and as seen in the discussion earlier, public universities are unlikely to favor any policy that requires spending a large amount of money. QF37 and QF39 are not as easy to reason out. Perhaps these appeared to be better options than QF29 for example, because extensions of grants and deferred start of fellowships would lead to slower productivity rather than no productivity at all, as would be the case for QF29 if department members took sabbaticals.

Whatever the reasons may be, it would be better to focus on the policies that both public and private administrators agree on are the best policies: QF12, QF13, QF20, QF27, QF33, QF34 and QF35. These seven top policies are of good quality and feasibility no matter what the university type is. University administrators can examine these policies and see how they can be

adopted within the university's existing policy framework to help women achieve balance in STEM fields.

Below is a table of all the policies, in order of the magnitude of difference in quality responses between public and private university respondents. Similar to how this table was constructed for gender, tests were conducted on the null hypothesis that the Q responses of public and private university respondents were not significantly different. The p-values were generated for each policy, and this table sorts the p-values from largest (i.e. most significant university type difference) to smallest (least significant university type difference).

Table 8: Ranking of quality of policies from most significant to least significant difference by title

Rank	Label	Policy	Q's p-value
1	**Q41**	Support conference and meeting grant supplements to cover cost of PI's dependent care travel (children's and childcare workers' expenses allowable).	0.0056
2	**Q5**	Explore/endorse couples-hiring.	0.0168
3	**Q32**	Provide an academic role for women who have left professional positions to have children.	0.0822
4	**Q8**	Set gender quotas (minimum thresholds) for promotion to higher levels of rank (e.g., full professor).	0.1036
5	**Q23**	Allow option of changing from full-time to part-time tenure-track: Short Term (up to 1 year).	0.1078
6	**Q35**	Develop mentoring programs to reduce isolation of female faculty.	0.1212
7	**Q10**	For promotion, increase value of teaching and service plus administration.	0.126
8	**Q38**	Support part-time fellowships and grants.	0.1373
9	**Q9**	Set gender quotas for important committees and administrative posts.	0.1388
10	**Q25**	Allow option of changing from full-time to part-time tenure-track: Permanent.	0.1619
11	**Q31**	Use technology to allow women and men with children to work and attend meetings from home.	0.1678
12	**Q24**	Allow option of changing from full-time to part-time tenure-track: Medium Term (2-5 years).	0.1735

13	**Q37**	Support no-cost extensions for caregiving on grants and fellowships.	0.1804
14	**Q29**	Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children.	0.1825
15	**Q28**	Provide subsidies for on-campus or off-campus childcare services.	0.1972
16	**Q30**	Offer family housing subsidies in regions where young families are priced out of the market.	0.1988
17	**Q15**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 6 weeks.	0.2011
18	**Q12**	Provide fully-paid leave for giving birth (tenure-track women only): For 6 weeks.	0.202
19	**Q18**	Provide teaching relief for new tenure-track parents: 1 semester.	0.2225
20	**Q26**	Support requests for shared tenure lines (between partners).	0.2598
21	**Q34**	Train department chairs on helping faculty manage work-life issues.	0.2842
22	**Q20**	Stop the tenure clock for raising children for up to 1 year per child: For mothers.	0.2852
23	**Q43**	Provide support to help faculty engaging in caregiving duties to catch up mid-career.	0.2931
24	**Q33**	Provide equal opportunities for women and men to lead committees and research groups.	0.3
25	**Q7**	Instruct search committees to ignore family-related gaps in CVs.	0.3166
26	**Q6**	Guarantee academic employment for professional spouses/partners.	0.3318
27	**Q39**	Support the deferred start of fellowships to allow for caregiving.	0.3926
28	**Q1**	Have a woman chair search committees whenever possible.	0.4876
29	**Q16**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 semester.	0.5126
30	**Q40**	Endorse supplements to offset PI's productivity loss due to family-related absences.	0.5374
31	**Q14**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 year.	0.5975
32	**Q17**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 year.	0.6008
33	**Q44**	Endorse supplemental funding for hiring postdocs to maintain momentum during family leaves.	0.7044
34	**Q3**	Set gender goals for candidate pools.	0.7447
35	**Q22**	Change timing of tenure assessment to not coincide with peak fertility and childrearing demands.	0.7624
36	**Q36**	Convene gender-equity workshops focusing on issues such as	0.7678

		workplace climate and resource allocation.	
37	**Q11**	Conduct (and disseminate) institutional research on gender equity.	0.7774
38	**Q4**	Set quotas for new lines: women-only lines until critical mass reached.	0.7918
39	**Q42**	Support grants for retooling after maternity leave.	0.7983
40	**Q13**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 semester.	0.8187
41	**Q27**	Provide on-campus childcare centers.	0.8581
42	**Q19**	Provide teaching relief for new tenure-track parents: 1 year.	0.9217
43	**Q2**	Reward departments that hire women.	0.9229
44	**Q21**	Stop the tenure clock for raising children for up to 1 year per child: For fathers.	0.9705

The following table is constructed in the same manner as the one above, this time looking at the p-value for testing differences in feasibility ratings between public and private university respondents.

Table 9: Ranking of feasibility of policies from most significant to least significant difference by title

Rank	Label	Policy	F's p-value
1	**F5**	Explore/endorse couples-hiring.	0.0005
2	**F4**	Set quotas for new lines: women-only lines until critical mass reached.	0.0014
3	**F41**	Support conference and meeting grant supplements to cover cost of PI's dependent care travel (children's and childcare workers' expenses allowable).	0.0022
4	**F30**	Offer family housing subsidies in regions where young families are priced out of the market.	0.006
5	**F20**	Stop the tenure clock for raising children for up to 1 year per child: For mothers.	0.0176
6	**F28**	Provide subsidies for on-campus or off-campus childcare services.	0.0182
7	**F13**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 semester.	0.0398
8	**F9**	Set gender quotas for important committees and administrative posts.	0.0444
9	**F21**	Stop the tenure clock for raising children for up to 1 year per child: For fathers.	0.0637

10	**F6**	Guarantee academic employment for professional spouses/partners.	0.0717
11	**F32**	Provide an academic role for women who have left professional positions to have children.	0.075
12	**F39**	Support the deferred start of fellowships to allow for caregiving.	0.0921
13	**F3**	Set gender goals for candidate pools.	0.1067
14	**F16**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 semester.	0.1205
15	**F2**	Reward departments that hire women.	0.1439
16	**F37**	Support no-cost extensions for caregiving on grants and fellowships.	0.2115
17	**F25**	Allow option of changing from full-time to part-time tenure-track: Permanent.	0.2304
18	**F43**	Provide support to help faculty engaging in caregiving duties to catch up mid-career.	0.2607
19	**F10**	For promotion, increase value of teaching and service plus administration.	0.2747
20	**F26**	Support requests for shared tenure lines (between partners).	0.2775
21	**F8**	Set gender quotas (minimum thresholds) for promotion to higher levels of rank (e.g., full professor).	0.2884
22	**F27**	Provide on-campus childcare centers.	0.3003
23	**F19**	Provide teaching relief for new tenure-track parents: 1 year.	0.3326
24	**F44**	Endorse supplemental funding for hiring postdocs to maintain momentum during family leaves.	0.3537
25	**F34**	Train department chairs on helping faculty manage work-life issues.	0.3955
26	**F14**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 year.	0.4742
27	**F1**	Have a woman chair search committees whenever possible.	0.4828
28	**F11**	Conduct (and disseminate) institutional research on gender equity.	0.5183
29	**F33**	Provide equal opportunities for women and men to lead committees and research groups.	0.5297
30	**F31**	Use technology to allow women and men with children to work and attend meetings from home.	0.5706
31	**F29**	Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children.	0.5883
32	**F36**	Convene gender-equity workshops focusing on issues such as workplace climate and resource allocation.	0.6104
33	**F42**	Support grants for retooling after maternity leave.	0.6254
34	**F22**	Change timing of tenure assessment to not coincide with peak fertility and childrearing demands.	0.6275

35	**F12**	Provide fully-paid leave for giving birth (tenure-track women only): For 6 weeks.	0.6461
36	**F15**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 6 weeks.	0.7465
37	**F18**	Provide teaching relief for new tenure-track parents: 1 semester.	0.7478
38	**F17**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 year.	0.7717
39	**F35**	Develop mentoring programs to reduce isolation of female faculty.	0.7833
40	**F23**	Allow option of changing from full-time to part-time tenure-track: Short Term (up to 1 year).	0.7927
41	**F24**	Allow option of changing from full-time to part-time tenure-track: Medium Term (2-5 years).	0.7935
42	**F40**	Endorse supplements to offset PI's productivity loss due to family-related absences.	0.8577
43	**F38**	Support part-time fellowships and grants.	0.9323
44	**F7**	Instruct search committees to ignore family-related gaps in CVs.	0.9753

As a rough approximation to find the policies which were most divided between university types by both quality and feasibility, we took the sum of Q and F p-values without regard for whether it was the quality or feasibility score that influenced the total p-value more. A smaller total p-value indicates that the policy is more divided. The table below lists the policies from the most divided to the least divided between university types.

Table 10: Overall ranking of policies from most significant to least significant difference by title

Rank	Label	Policy	Sum of Q and F's p-value
1	**QF41**	Support conference and meeting grant supplements to cover cost of PI's dependent care travel (children's and childcare workers' expenses allowable).	0.0078
2	**QF5**	Explore/endorse couples-hiring.	0.0173
3	**QF32**	Provide an academic role for women who have left professional positions to have children.	0.1572
4	**QF9**	Set gender quotas for important committees and administrative posts.	0.1832
5	**QF30**	Offer family housing subsidies in regions where young families	0.2048

		are priced out of the market.	
6	**QF28**	Provide subsidies for on-campus or off-campus childcare services.	0.2154
7	**QF20**	Stop the tenure clock for raising children for up to 1 year per child: For mothers.	0.3028
8	**QF37**	Support no-cost extensions for caregiving on grants and fellowships.	0.3919
9	**QF8**	Set gender quotas (minimum thresholds) for promotion to higher levels of rank (e.g., full professor).	0.392
10	**QF25**	Allow option of changing from full-time to part-time tenure-track: Permanent.	0.3923
11	**QF10**	For promotion, increase value of teaching and service plus administration.	0.4007
12	**QF6**	Guarantee academic employment for professional spouses/partners.	0.4035
13	**QF39**	Support the deferred start of fellowships to allow for caregiving.	0.4847
14	**QF26**	Support requests for shared tenure lines (between partners).	0.5373
15	**QF43**	Provide support to help faculty engaging in caregiving duties to catch up mid-career.	0.5538
16	**QF16**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 semester.	0.6331
17	**QF34**	Train department chairs on helping faculty manage work-life issues.	0.6797
18	**QF31**	Use technology to allow women and men with children to work and attend meetings from home.	0.7384
19	**QF29**	Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children.	0.7708
20	**QF4**	Set quotas for new lines: women-only lines until critical mass reached.	0.7932
21	**QF33**	Provide equal opportunities for women and men to lead committees and research groups.	0.8297
22	**QF12**	Provide fully-paid leave for giving birth (tenure-track women only): For 6 weeks.	0.8481
23	**QF3**	Set gender goals for candidate pools.	0.8514
24	**QF13**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 semester.	0.8585
25	**QF23**	Allow option of changing from full-time to part-time tenure-track: Short Term (up to 1 year).	0.9005
26	**QF35**	Develop mentoring programs to reduce isolation of female faculty.	0.9045
27	**QF15**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 6 weeks.	0.9476
28	**QF24**	Allow option of changing from full-time to part-time tenure-	0.967

		track: Medium Term (2-5 years).	
29	**QF18**	Provide teaching relief for new tenure-track parents: 1 semester.	0.9703
30	**QF1**	Have a woman chair search committees whenever possible.	0.9704
31	**QF21**	Stop the tenure clock for raising children for up to 1 year per child: For fathers.	1.0342
32	**QF44**	Endorse supplemental funding for hiring postdocs to maintain momentum during family leaves.	1.0581
33	**QF2**	Reward departments that hire women.	1.0668
34	**QF38**	Support part-time fellowships and grants.	1.0696
35	**QF14**	Provide fully-paid leave for giving birth (tenure-track women only): For 1 year.	1.0717
36	**QF27**	Provide on-campus childcare centers.	1.1584
37	**QF19**	Provide teaching relief for new tenure-track parents: 1 year.	1.2543
38	**QF7**	Instruct search committees to ignore family-related gaps in CVs.	1.2919
39	**QF11**	Conduct (and disseminate) institutional research on gender equity.	1.2957
40	**QF17**	Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 1 year.	1.3725
41	**QF36**	Convene gender-equity workshops focusing on issues such as workplace climate and resource allocation.	1.3782
42	**QF22**	Change timing of tenure assessment to not coincide with peak fertility and childrearing demands.	1.3899
43	**QF40**	Endorse supplements to offset PI's productivity loss due to family-related absences.	1.3951
44	**QF42**	Support grants for retooling after maternity leave.	1.4237

CHAPTER 6: CONCLUSION

From the discussion and analyses in the preceding chapter, we can draw a number of conclusions. The overall analysis tells us that the Q and F ratings by each respondent are for the most part correlated. This means that it is most likely that the same underlying reasoning was used when giving Q and F ratings. A list of the best overall policies was created using the median rating scores in order to account for any skew in the data. The top 10 policies in this list are:

1. QF33: Provide equal opportunities for women and men to lead committees and research groups.
2. QF35: Develop mentoring programs to reduce isolation of female faculty.
3. QF27: Provide on-campus childcare centers.
4. QF20: Stop the tenure clock for raising children for up to 1 year per child: For mothers.
5. QF34: Train department chairs on helping faculty manage work-life issues.
6. QF29: Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children.
7. QF13: Provide fully-paid leave for giving birth (tenure-track women only): For 1 semester.
8. QF12: Provide fully-paid leave for giving birth (tenure-track women only): For 6 weeks.
9. QF36: Convene gender-equity workshops focusing on issues such as workplace climate and resource allocation.
10. QF18: Provide teaching relief for new tenure-track parents: 1 semester.

Since the respondents sampled were not evenly distributed among the various factors we measured, the results were biased towards the views of male department chairs from public universities. It is biased towards males because the majority of STEM department chairs, and even associate deans and deans, are male. The bias towards department chairs and public universities arises because of the nature of the survey – many more department chairs were sampled, and the top 96 research universities included more public institutions than private ones. To account for this bias, the results were broken down by gender, title and university type and each group examined to see if the respondent's characteristics made a difference in what they thought were the best policies.

When the responses were broken down by gender, seven policies differed in quality ratings and nine differed in feasibility ratings by males and females. Yet only one policy, QF26, "Support requests for shared tenure lines (between partners)" was divided by gender both by quality and feasibility ratings. Nonetheless, when the best policies of males and females were looked at separately, the policies in the overall best list featured in the list of the individual genders as well. This means that males and females both agreed on the top 10 policies, and gendered differences in ratings only applied to policies that were not considered best by either gender. Still, QF12 and QF13 were ranked as being among the best policies and are also among the policies which are divided by gender according to feasibility, with females ranking these as less feasible than males. Possibly, concerns over how a long term break would affect their CV and their work, even when in line with university policies, may have influenced the ratings of the women respondents. Thus we have to be cautious when drawing conclusions about the applicability of QF12 and QF13 to universities across the board.

Breaking down the responses by title, four policies differed in terms of quality and five differed in terms of feasibility, with two policies that differed by title in terms of both quality and feasibility. However, many of these differences appear to be because of the significant difference in the sample size of each title, from 17 for provosts to 191 for department chairs. After accounting for sample size, only Q10 and F11 differed significantly in terms of quality and feasibility respectively between the groups. None of the policies differed significantly in both quality and feasibility. Also, QF10 and QF11 are not among the overall top ten policies. This is good because it means that on the whole, title is not a significant source of variation in our data and so the ranking of best policies is not affected by the title of the respondents.

In conducting the analysis by university type, two policies differed in terms of quality and eight differed in terms of feasibility. The two policies that differed in terms of quality also differed in terms of feasibility. However, these policies QF5, "Explore/endorse couples-hiring" and QF41, "Support conference and meeting grant supplements to cover cost of PI's dependent care travel (children's and childcare workers' expenses allowable)" are not in the top 10 overall best policies. From this we can say that university type has little to no effect on what makes an overall good policy.

From all these analyses, we see that gender, title and university type do affect the quality and feasibility ratings of each policy in our survey, but the best overall policies transcend these groupings. The best policies are given high quality and feasibility ratings regardless of the gender, title or university type of the respondent. This means that this set of best policies can be recommended across all these research universities (and possibly even beyond, to other universities not included in our study) to help women in STEM balance their family and work life.

Hopefully this data set and analysis will allow universities to explore the option of implementing some of these top policies which have been highly rated by administrators across many research universities. With the collective knowledge and opinions of all the respondents, university administrators will have a better feel for how well-received a policy will be and how easy it will be to implement, and accordingly put in place or modify policies to suit the needs of their STEM-field women best. With these policies in place, women in STEM-fields will be better able to achieve a balance between their commitments to family and work.

APPENDIX A: EMAIL SURVEY

Dear Professor ,

Might you have 9 minutes to help with our research on women in science? We were funded by the National Institutes of Health to study and address reasons for women's underrepresentation in many fields of STEM (Science, Technology, Engineering and Mathematics) academic science. We have compiled a list of strategies, some potentially good and others perhaps not. Now, we need data on how these strategies are viewed by senior administrators in the academy. We are sending the brief list below to a diverse cross-section of provosts, deans, department heads, and other administrators in STEM fields across the U.S., in the hope of receiving a quick, seat-of-the-pants reaction. All we ask is for two quick ratings for each strategy (on a 1-to-9 scale): How good an idea is it? How feasible is it?

Our program of research at the Cornell Institute for Women in Science has depended on the generosity of thousands of professors across the country who have selflessly given their time to complete our experimental questionnaires and surveys. Pilot testing showed this task takes an average of 9 minutes. Cornell's IRB requires us to note that the internet is neither private nor secure and you are obviously under no obligation to help. Our findings will be posted at the url below.

Our research would not be possible without the kindness of our colleagues, near and far. We thank you for your valuable time!

Wendy M. Williams & Stephen J. Ceci, Professors, Department of Human Development, Cornell University (www.ciws.cornell.edu)

Please rate each of the following policy ideas on a 1-to-9 scale for QUALITY and FEASIBILITY, in which 1=extremely low, 3=somewhat low, 5=neutral, 7=somewhat high, and

9=extremely high. By QUALITY ("Q") we mean: How good is this strategy, if the goal is to increase the number of women in traditionally-underrepresented STEM fields in the professoriate? By FEASIBILITY ("F") we mean: How workable, cost-effective, and reasonable would this strategy be to implement?

Addressing Gender Biases During Hiring

Have a woman chair search committees whenever possible. Q___F___

Reward departments that hire women. Q___F___

Set gender goals for candidate pools. Q___F___

Set quotas for new lines: women-only lines until critical mass reached. Q___F___

Explore/endorse couples-hiring. Q___F___

Guarantee academic employment for professional spouses/partners. Q___F___

Instruct search committees to ignore family-related gaps in CVs. Q___F___

Addressing Gender Biases After Hiring

Set gender quotas (minimum thresholds) for promotion to higher levels of rank (e.g., full professor). Q___F___

Set gender quotas for important committees and administrative posts. Q___F___

For promotion, increase value of teaching and service plus administration. Q___F___

Conduct (and disseminate) institutional research on gender equity. Q___F___

Attaining Tenure and Maintaining Productivity

Provide fully-paid leave for giving birth (tenure-track women only): For 6 weeks? Q___F___ For 1 semester? Q___F___ For 1 year? Q___F___

Provide fully-paid leave for adoption/new parenthood (tenure-track women and men): For 6 weeks? Q___F___ For 1 semester? Q___F___ For 1 year? Q___F___

Provide teaching relief for new tenure-track parents: 1 semester? Q___F___ 1 year? Q___F___

Stop the tenure clock for raising children for up to 1 year per child: For mothers? Q___F___ For fathers? Q___F___

Change timing of tenure assessment to not coincide with peak fertility and childrearing demands. Q___F___

Allow option of changing from full-time to part-time tenure-track: Short Term (up to 1 year) Q___F___ Medium Term (2-5 years) Q___F___ Permanent Q___F___

Support requests for shared tenure lines (between partners). Q___F___

Balancing Work and Family

Provide on-campus childcare centers. Q___F___

Provide subsidies for on-campus or off-campus childcare services. Q___F___

Allow unpaid sabbaticals and leave of absences for both genders without penalty, for family-related reasons such as elder caretaking and issues with children. Q___F___

Offer family housing subsidies in regions where young families are priced out of the market. Q___F___

Use technology to allow women and men with children to work and attend meetings from home. Q___F___

Provide an academic role for women who have left professional positions to have children. Q____ F____

Providing Leadership and Training Opportunities

Provide equal opportunities for women and men to lead committees and research groups. Q___F___

Train department chairs on helping faculty manage work-life issues. Q___F___

Develop mentoring programs to reduce isolation of female faculty. Q___F___

Convene gender-equity workshops focusing on issues such as workplace climate and resource allocation. Q___F___

Supporting Greater Flexibility for Federal Grants and Funding

Support no-cost extensions for caregiving on grants and fellowships. Q___F___

Support part-time fellowships and grants. Q___F___

Support the deferred start of fellowships to allow for caregiving. Q___F___

Endorse supplements to offset PI's productivity loss due to family-related absences. Q___F___

Support conference and meeting grant supplements to cover cost of PI's dependent care travel (children's and childcare workers' expenses allowable). Q___F___

Support grants for retooling after maternity leave. Q___F___

Provide support to help faculty engaging in caregiving duties to catch up mid-career. Q___F___

Endorse supplemental funding for hiring postdocs to maintain momentum during family leaves. Q___F___

APPENDIX B: SURVEY REMINDER

Dear Professor X,

A couple weeks ago, we wrote to you about our current research on strategies to address women's underrepresentation in STEM academic careers (see below). Although we of course understand that you may simply be too busy to complete our survey, we are sending this single reminder email in case you would like to be included in the study. Can you possibly spare 10 minutes to help? Our research team is committed to uncovering which strategies administrators deem most important and feasible for improving the environment for women in science today.

Thanks for considering this and have a good day!

Wendy M. Williams & Stephen J. Ceci, Professors

Department of Human Development, Cornell University

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